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TCRP Report 58

New Paradigms for Local Public Transportation Organizations

Task 5 Report:

Opening the Door to Fundamental Change

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Report 58

New Paradigms for Local Public Transportation Organizations

Task 5 Report:

Opening the Door to Fundamental Change

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Subject Areas

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The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Urban Mass Transportation Administration—now the Federal Transit Administration (FTA). A report by the American Public Transportation Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA, the National Academies, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee.

Research problem statements for TCRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the TOPS Committee to formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products.

Once selected, each project is assigned to an expert panel, appointed by the Transportation Research Board. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, TCRP project panels serve voluntarily without compensation.

Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

The TCRP provides a forum where transit agencies can cooperatively address common operational problems. The TCRP results support and complement other ongoing transit research and training programs.

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NOTICE

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The members of the technical advisory panel selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and while they have been accepted as appropriate by the technical panel, they are not necessarily those of the Transportation Research Board, the National Research Council, the Transit Development Corporation, or the Federal Transit Administration of the U.S. Department of Transportation.

Each report is reviewed and accepted for publication by the technical panel according to procedures established and monitored by the Transportation Research Board Executive Committee and the Governing Board of the National Research Council.

To save time and money in disseminating the research findings, the report is essentially the original text as submitted by the research agency. This report has not been edited by TRB.

Special Notice

The Transportation Research Board, the National Research Council, the Transit Development Corporation, and the Federal Transit Administration (sponsor of the Transit Cooperative Research Program) do not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the clarity and completeness of the project reporting.

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FOREWORD

*By Staff
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Board*

This is the second report published by TCRP examining how new paradigms might be introduced into local public transportation. The report presents key ideas and principles that point the way to fundamental change. Examples are presented to illustrate how fundamental change has been introduced and sustained in other industries and businesses.

This report was developed by TCRP Project J-8B, "New Paradigms for Local Public Transportation Organizations"; it addresses three basic questions:

1. *Why* is fundamental change—a paradigm shift—needed in public transportation?
2. *What* is the scope and scale of change that might be sought?
3. *How* can fundamental change be most effectively pursued and sustained?

The report is concise and easy highly readable. It poses provocative questions, and it challenges readers to consider the situations in their communities and whether a new paradigm for local public transportation should be pursued. The report's four chapters progress logically from an assessment of the current organization of the transit industry to a summary of the fundamental elements of a public transportation paradigm shift based on lessons learned from other industries.

The report addresses why fundamental change is now needed in public transportation and how other businesses and industries have responded to similar factors and forces in the recent past. Six broad challenges that currently drive the need for fundamental change in public transportation are presented: the vitality of our urban areas; socio-economic trends; the "enabling environment" (characterized by fragmented responsibilities, regulatory constraints, and conflicting policies and goals); organizational dynamics and culture; the focus on customer's experience; and the digital economy and information age.

Although the results of this research do not espouse a single model or organizational arrangement for public transportation systems, the report does suggest that in many industries a fundamental shift is occurring toward a strategic focus on managing service to customers rather than on managing the use of a single organization's assets. The new paradigm focuses on the varying and changing needs of customers—needs that often require the formation of new organizational alliances among former competitors. State-of-the-art information technology is critical for understanding customer needs and providing real-time information. Incentives for innovation at all levels of an organization must replace historical barriers to change.

The appendices to this brief report address the process for change. Emphasis is placed on the importance of organizations being proactive, rather than reactive, thus strengthening their capacity to change. Public transportation systems must recognize the need for change as it arises and must proceed to plan, carry out, and institutionalize new approaches that are responsive to customers and the external environment.

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NEW PARADIGMS FOR LOCAL PUBLIC TRANSPORTATION ORGANIZATIONS

Task 5 Report: Opening the Door to Fundamental Change



Collage by R. Sessions, photo by R. Gordon; reprinted with permission of *Planning Magazine*, American Planning Association, Dec. 1995.

"The first policy—and the foundation of all others—is to abandon yesterday."

*Peter F. Drucker
Management Challenges for the 21st Century*

NEW PARADIGMS FOR LOCAL PUBLIC TRANSPORTATION ORGANIZATIONS

Task 5 Report: ***Opening The Door To Fundamental Change***

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THE NEW PARADIGMS PROJECT

Under the leadership of a far-thinking group of transit and transportation professionals, the Transit Cooperative Research Program (TCRP) began in 1997 to explore the scope and scale of change that may be needed to enhance the relevance of public transportation in the decades ahead.

The New Paradigms project is being undertaken with three objectives in mind:

1. To spur debate over the need for fundamental change,
2. To identify what types of change may be pursued, and
3. To support efforts to enhance management and delivery of public transportation in selected localities around the country.

The search for new paradigms reflects a recognition that many public transportation institutions and services, which have remained largely unchanged over the past 30 years, have become unresponsive and inflexible in the face of trends, conditions, needs, and expectations that are dramatically different than they were even a decade ago.

In contrast, the same factors threatening public transportation organizations have given rise to dramatic changes across many other businesses and industries:

- Whole industries are being "reinvented,"
- The roles and responsibilities of organizations and individual business units are being redefined, and
- Long-standing business practices and processes are being discarded and redesigned.

The search for new paradigms in public transportation is, therefore, an effort to understand how future public transportation organizations might be structured and managed—assuming that in 10 to 15 years, public transportation services must be pursued in a dramatically different way if transit is to continue to support our quality of life, the character of our communities, and the competitiveness of our economy.

One benchmark for the New Paradigms project has been suggested by management guru Peter F. Drucker: "**The first policy—and the foundation of all others—is to abandon yesterday.**" But, if we follow Drucker's advice, how will public transportation organize itself for tomorrow?

*"The dogmas of the quiet past are inadequate for the stormy present and future. As our circumstances are new, we must think anew and act anew."
(Abraham Lincoln)*

Paradigm Shift **Paradigm, n.**

An underlying model or pattern of organization and activity.

Paradigm Shift, n.

A fundamental change in that model, a "discontinuity" in how resources are organized and managed, and products and services delivered.

A Paradigm Shift for Transit

The objective of a paradigm shift is to increase transportation options by better aligning resources, decision-making processes, and service delivery with customer needs, travel markets, and broader community goals.

ORGANIZATION OF THE REPORT

This report provides a wide range of stakeholders with a set of insights and strategies that can be pursued to initiate fundamental change—or a paradigm shift—in how public transportation services can be designed and delivered, and how public transit organizations may be managed in the decades to come.

The report represents the midpoint in an extensive research effort being sponsored by TCRP of the Transportation Research Board (TRB). It summarizes findings from ongoing research that address three basic questions:

1. **Why** is fundamental change—a paradigm shift—needed in public transportation?
2. **What** is the scope and scale of change that might be sought?
3. **How** can fundamental change be most effectively pursued and sustained?

"Forces and Factors that Require Consideration of New Paradigms" (TCRP Report 53) summarizes why fundamental change may be needed in public transit organizations.

Chapter 1 summarizes the current organization of the transit industry and how it came to a model of public ownership and operation—the current post-war paradigm.

Chapter 2 provides an overview of why fundamental change in public transportation is needed.

Chapter 3 illustrates how these same factors have prompted paradigm shifts in other businesses and industries, highlighting key lessons that may be relevant in redirecting public transportation.

Chapter 4 summarizes the fundamental elements of a paradigm shift in public transportation based on the lessons from other businesses and industries.

The appendices outline how a new public transportation paradigm might be developed and pursued.

Each chapter presents key ideas and principles that point the way toward fundamental change. Each chapter also includes brief examples selected from case studies that illustrate the type of fundamental changes that have been introduced and sustained in other businesses and industries.

The authors and sponsors of the New Paradigms project hope that this report will spur debate and discussion as an initial step in the search for new paradigms in public transportation.

If your agency, firm, or community wishes to explore fundamental organizational change in the design and delivery of public transportation in your community, the resources available through this project can be requested. Contact the TCRP Project Manager, Ms. Dianne S. Schwager, at (202) 334-2969 or Mr. Robert G. Stanley, Principal Investigator, Cambridge Systematics, Inc., at (202) 466-5542.

THE MESSAGE IN BRIEF

A New Paradigm: Shifting from the Management of Transit Assets to the Management of Transportation Services

The time is fast approaching for fundamental change—a new paradigm—in transportation and particularly in our public transportation organizations, which have remained largely unchanged—and unresponsive to change—over the past 30 years.

Emerging Principles

The lessons learned from other businesses and industries provide a set of principles for a new public transit paradigm in the years ahead:

- An increase in the authority of a public agency to design, track, and evaluate public transportation and shared-ride services to enhance regional mobility;
- A decrease in the role of the traditional transit agency in the direct provision of services;
- Increased emphasis on a broader mix of services tailored to satisfy discrete market segments, and reduced emphasis on minimizing the cost and price of service;
- Increased use of information and related technologies to track both operational and systemwide performance against the needs of users and the quality of service from a user's door-to-door perspective; and
- Increased incentives for employees at all levels to innovate and improve the quality of services whenever possible.

If these principles are pursued fully through the steps outlined in the appendices, the conventional transit paradigm focused on management of publicly owned and operated assets will give way to a new paradigm focused on managing services and to an obsession for the customer that will create significant and lasting value for the entire community.

An Invitation

Across public transportation organizations,
new visions are being fashioned,
new missions are being explored, and
new management and governance
arrangements are being introduced.

***The New Paradigms project
can assist in these efforts.***

**IF YOUR ORGANIZATION
WOULD LIKE SUPPORT FROM
THE NEW PARADIGMS PROJECT IN
PURSUING FUNDAMENTAL CHANGE,
CONTACT:**

**Ms. Dianne S. Schwager, TCRP,
at (202) 334-2969**

or

**Mr. Robert G. Stanley,
Cambridge Systematics, Inc.,
(202) 466-5542.**

Chapter 1

THE SURVIVING TRANSIT PARADIGM

One of the central issues arising in the discussion of new paradigms in public transportation is whether the post-war model of comprehensive public ownership and operation is the most effective model for the decades ahead.

The Emergence of the "Public" Transit Paradigm

Until the late 1940s, private companies provided the vast majority of public transit service. Mounting deficits forced declines in service quality and the dissolution of private transit enterprises in large and small communities.

A variety of unsuccessful efforts were made to sustain private transit services through public regulation and franchising. In 1947, private transit systems in both Boston and Chicago were converted to public ownership and operation, and by the early 1970s the shift from private to public operation of transit services was essentially completed nationwide.

The post-war shift from private to public transit was spurred by familiar forces. The forces include the shift from a war-based economy to a domestic-based economy, the emergence of suburban settlement patterns that changed the face of urban America, the rapid reemergence of auto availability, and public policies and programs that directly and indirectly reinforced these trends.

As a result, the earlier classic, profit-centered, "business model" of transit service gave way to a public sector model of transit ownership, operation, and subsidy that has endured for more than 30 years.

Today's Transit Services

In the vast majority of cases, public transportation providers continue to operate traditional services that vary little from those services offered by their private predecessors. The big difference is that forces and trends have undercut the relevance of such transit services for many, and the cost of transit that is not paid by users has shifted to local, state, and federal governments.

Furthermore, in the areas in which public transit is planned and provided by independent regional authorities, decisions are made at arm's length from the mayor, city councils, and county commissions that form the fabric of local elected government.

"The post-war transformation of a private industry into a publicly owned and operated service was, indeed, a paradigm shift of gigantic proportions driven by a widespread financial crisis." (TCRP Report 53, Transportation Research Board, Washington, D.C. 1999)

Transit Service and Use

Mode	Miles	Hours	Trips
Bus	59%	66%	62%
Demand			
Response	17%	17%	na
Heavy			
Rail	15%	11%	27%
Commuter			
Rail	7%	3%	na
Other			11%

(TCRP Report 53)

"...an industry in which the demand for its products or services grows less fast than national income and/or population is a 'declining' industry, even if its absolute sales volume still continues to grow." (Peter F. Drucker, Management Challenges for the 21st Century, p. 53)

The "Public" Transit Paradigm as a Success

Volumes have been written describing the interplay of interests that brought us to the current public sector model of transit service. Often overlooked in these reviews is the fact that the shift to public ownership and operation was highly successful in meeting the financial crisis that existed at the time.

With the shift from a private to a public enterprise, basic services were maintained, fares were kept reasonable, equipment was modernized, services were expanded, labor protections maintained for private workers, and new levels of accountability were instituted through publicly managed planning and budgeting processes.

Public ownership and operation served its original purposes well. But conditions have changed while the public transit industry has not.

Can the Current Transit Paradigm Evolve?

In recent years, questions have been raised about whether the surviving "public transit paradigm" can or should be sustained. Despite recent gains in transit ridership, the institutional structure and traditional business practices of public transit organizations are being increasingly called into question.

Industry leaders, elected officials, and community leaders interviewed for the New Paradigms project have noted the potential "crisis" that looms for public transportation in the form of declining market share, increasing costs, and the inability of today's public transit organizations to respond to emerging travel demands and customer expectations.

In a handful of communities around the country, however, public transportation systems and services are being rethought and reorganized. New institutional arrangements, organizational structures, and business processes are being instituted in an effort to better serve broader community goals through smarter investment in transportation.

To a considerable degree, these changes echo the kinds of change that are occurring in a variety of other organizations and industries. The lessons learned both within and outside the transportation arena provide exciting models—new paradigms—to guide the next transformation of public transit in the United States.

"We cannot afford, either literally or figuratively, to do business as usual. Let us recognize that our focus should be on using our skills as mobility managers, not necessarily as service providers, to improve mobility and efficiency."

(James F. McLaughlin, Public Transportation Management and Planning in a Rapidly Changing Environment [Research Circular 460] Transportation Research Board, Washington, D.C., April 1996, p.51)

"When we start talking about markets and market share, public transit presents a pretty pathetic picture."

(Thomas F. Larwin, Research Circular 460, p.8)

"As hard as we try in our community, which is the metropolitan area of Salt Lake, we are losing in terms of market share. We are growing in terms of numbers of public transit riders, but we are losing in terms of market share."

(John Pingree, Research Circular 460, p.19)

Industrial-Age Paradigm

- Operational Efficiency
- Focus On A Small Piece
- Autonomy, Adversarial
- Command & Control
- Machines, Buildings, Materials

Information-Age Paradigm

- Flexibility & Adaptation
- Focus On Whole System
- Collaboration
- Employee Involvement, Empowerment
- Information, People

Chapter 2

WHY IS FUNDAMENTAL CHANGE NEEDED?

Forces and Factors Driving Paradigm Shifts

Six broad challenges will drive fundamental organizational change in public transportation in the decades ahead. Are these challenges evident in your community or region? Do they suggest the need for a new approach to organizing and managing public transportation?

Regardless of the size and character of the communities we live in, rapidly emerging conditions suggest that fundamental changes are needed in both the public and private sectors.

*"It is futile, for instance, to try to ignore the changes and to pretend that tomorrow will be like yesterday, only more so."
(Drucker)*

In more specific terms, we can point to six sets of challenges that suggest it is time to reconsider how we organize and manage public transportation in the United States:

Challenge 1—The vitality of our urban areas

Challenge 2—Socio-economic trends

Challenge 3—The "enabling environment"

Challenge 4—Organizational dynamics and culture

Challenge 5—The customer's experience

Challenge 6—The digital economy

The Price of Resistance

A recent study of businesses concluded that "A pattern emphasized in the cases... is the degree to which powerful competitors not only resist innovative threats, but actually resist all efforts to understand them, preferring to further entrench their positions in older products. This results in a surge of productivity and performance that may take the old technology to unheard-of heights. But, in most cases, this is a sign of impending death."

(Jim Utterback, "Mastering the Dynamics of Innovation")

Challenge 1

Quality of Life and the Economic Vitality of Our Urban Areas

Our urban areas are the most productive components of the U.S. economy. However, while we have reaped their economic rewards, we have failed to reinvest in the infrastructure that sustains the flow of goods and people that make our urban areas so productive. Persistent trends are now in evidence across much of the metropolitan United States that suggest renewed attention to how our urban areas are structured and to how they function is needed. Among these are

- ***The unabated expansion of low-density, sprawling development at our urban and suburban fringes.*** Whether simply a reflection of lifestyle preferences, market forces, or the product of short-sighted public policies, sprawl at the fringe and the emerging "edge cities" phenomenon consume ever-increasing amounts of valuable agricultural and open space and stretch our ability to provide basic public services to the breaking point. From a transportation standpoint, typical suburban development patterns require the use of private vehicles to meet virtually every trip, diminishing our sense of community and place.
- ***The spread of congestion across city and suburb.*** Traffic congestion now extends beyond traditional peak hours and exists throughout longer periods of the day, both weekdays and weekends. Just as alarming is the overflow of traffic from major freeways onto arterial roadways and local streets, further threatening personal safety and neighborhood integrity.
- ***The ever-increasing cost and declining performance of a wide range of public services.*** Traditional public services are under increasing attack because of a pattern of increasing cost and declining performance. Public unrest and demands for improved service quality and greater accountability by public managers and policy-makers are evident in education, healthcare, human services, and law enforcement, as well as in transportation.
- ***Our ability and willingness to continually increase public investment is limited.*** Popular support for increased spending on public services is tentative at best. Although investment in public transportation has grown over the past decade, the message from voters has been mixed when they have been asked to increase public spending on traditional transit services, particularly when local tax dollars are at stake.



"Increasingly we are seeing our electorate tell us, 'Don't keep doing that.' Just because you have a bureaucracy in place to provide this and you have an infrastructure in place and you have employee groups in place, that doesn't mean it needs to be provided, because we don't need it anymore."
(Kurt Weinrich, Research Circular 460, p. 17)

These broad trends are increasingly the subject of a public debate. The heightened attention is rooted in the fear that these trends threaten the quality of life and economic opportunity for households and individuals. In fact, these consequences are already in evidence in some areas of the country, and the debate is underway over what strategies and actions are needed to assure a "sustainable future" and to avoid a looming crisis of community.

Across all public services, including transportation and public transit, it is becoming increasingly clear that "more of the same" is unacceptable and unsustainable. Public debate is focusing instead on better and smarter arrangements for organizing our communities and providing essential public services. Today, and tomorrow, it is not enough to simply be a "good transit operator."



Project for Public Spaces, Inc.

Questions for Readers

- 1. To what extent have these conditions and trends been assessed in your community?***
- 2. Is timely attention being paid to strategies to address these conditions and trends?***

Challenge 2

Socio-economic Trends that Diminish the Role and Relevance of Public Transportation

The second set of conditions challenging today's public transportation organizations is socio-economic trends that diminish the relevance of traditional public transit systems and services for individual users. These trends have been well documented and are summarized in the initial report prepared for the New Paradigms project, *TCRP Report 53*, "New Paradigms for Local Public Transportation Organizations; Task 1 Report: Forces and Factors That Require Consideration of New Paradigms."

In the decades to come, an aging population, high levels of immigration, and slow income growth in some segments of the population will ensure the continued existence of a "transit-dependent" population. More significantly, however, are the other socio-economic changes that point to a continuing decline in the relevance and appeal of today's transit services. The changes are

- The rise of the service economy, which diffuses travel patterns;
- Increasing flexibility in work schedules, which requires multiple trips over longer distances and periods of the day;
- Rising real income in many segments of the population, which fuels increases in vehicle ownership and use;
- Increases in single-parent, single-adult, and two-worker households, which reduce the usefulness of traditional transit services;
- Suburbanization and resulting low population and employment densities, which vastly reduce the appeal of traditional transit services in our fastest growing areas;
- Slow introduction of new technologies into the transit industry, which constrains fundamental change and improved market responsiveness.
- Children of the Internet Age who are growing up with little or no appreciation for or exposure to transit as a travel option.

Socio-economic Trends

73% growth in service jobs 1907-1990

72% of civilian employees are in the service sector

50% of workers will have flexible work schedules in 2000

90% of new jobs created monthly are involuntary, part-time jobs

60% of married women were employed in 1990

40% poor households were elderly in 1990

Formation of single parent households is growing faster than population

Proportion of total travel for work trips has declined to roughly 30%

These trends also, however, present an increasingly clear opportunity for reinventing public transportation organizations.

Questions for Readers

- 1. To what extent are these trends apparent in your community?*
- 2. Are these trends understood well enough to support consideration of new strategies?*

Challenge 3

The "Enabling Environment": Fragmented Responsibilities, Regulatory Constraints, and Conflicting Policies and Goals

Nationwide, nearly 6,000 agencies provide transit services. Of these more than 550 serve larger urbanized areas. In addition, hundreds of other organizations and agencies are responsible for important aspects of transportation planning and management at the federal, state, regional, and local levels.

"Without changes in the enabling environment, the transportation system would continue down the path of incremental change, rather than enable the kind of paradigm shifts that would bring us to a truly 'sustainable' transportation system."
(Deen and Robert E. Skinner, Jr., TCRP Report 53)

Over time, the missions, responsibilities, and authority of transit agencies and other transportation organizations—key features of the "enabling environment"—have become increasingly confused and fragmented, often working at cross-purposes or in direct competition.

Multiple Actors and Stakeholders

A wide range of federal, state, and local organizations and stakeholders have accumulated varied, overlapping, and competing responsibility for transit and related transportation services. Stakeholder interest in the status quo is strongly defended, and fragmented roles and responsibilities frustrate efforts to integrate services, share resources, and improve overall attractiveness to the user.

Institutions Influencing Public Transportation

Regional transit authorities
Local governments
State governments
Federal government
Metropolitan planning organizations
Organized labor
School districts
Educational institutions
Health and human service agencies
Toll authorities
Regulatory agencies
Taxi, parking, utility commissions, etc.
Port and airport authorities
Courts
Private businesses
Transportation management associations
Communications and news media

Conflicting Transportation Policies and Goals

The ability of today's public transportation organizations to respond to changing conditions and travel markets is also affected by public policies. Many of today's policies and regulations are focused on single modes, restrict revenue-raising, constrain the use of available funds, increase the cost of service, and frustrate efforts to innovate and integrate services.

In addition, the enabling environment also is characterized by contradictory goals and objectives that have accumulated over the post-war years. The overriding objective for transit managers typically has been to provide as much service as an annual budget would allow.

"We have no innovation in urban public transportation services today, because it is against the law. Bus and taxi systems have legally sanctioned monopolies. How is that for welcoming someone who has a new idea?"
(A. Scheffer Lang, *Transportation Quarterly*, Fall 1999, p. 20)

Forced to focus on this short-term budget objective, there is little incentive to consider the long-term consequences of today's transit management and governance arrangements and little incentive to experiment with new service delivery models.

Although emphasis continues to be placed on short-term budgets, transit agencies are expected to pursue other objectives—for example, to expand service, increase ridership, serve new markets, increase market share, reduce costs, reduce subsidy levels, and increase revenue. Often these goals and objectives are in conflict and are difficult, if not impossible, to reconcile. Contrast this confusion with the clarity that exists in the private sector, where pursuit of profit and value is the clear goal and exceptional customer service the accepted means to achieve it.

Conflict over what is expected of public transportation organizations also makes it difficult to measure the longterm success and value of transportation investments. Our traditional measures of performance are narrowly focused:

- **Simple outputs** (miles of highway constructed or hours of transit service provided);
- **Economic efficiency** (how cheaply we produce that output); and
- **Engineering standards** (lane width, pavement deficiencies, and miles between bus and rail-car repairs).

"It is the character of mature bureaucracies to govern systems by focusing on how efficiently infrastructure is used rather than on how efficiently public infrastructure serves users. ... The true efficiency test is not how many people or vehicles can be squeezed onto public highways and transit but rather how much economic product and quality of life can be generated through their use."
(Jonathan L. Gifford, *Transportation Quarterly*, Fall 1999, p.60-61)

But, our perspectives have broadened. We now demand to know how our transportation investments and services effect the quality of the travel experience and the overall quality of life and the character of our communities.

Although we understand that meeting these goals requires improved access and mobility, the yardsticks we use to measure the performance of our transportation system do not yet reflect the broader goals that the system is expected to achieve. The resulting confusion over mission, goals, and measures of success needs to be resolved.

Program Structure and Funding Constraints

The conditions under which public funding is provided to transit and other transportation modes are prescribed in detail in federal, state, and local laws and regulations. Historically, funds for transportation have been made available through a variety of separate "categorical" programs that have narrowly defined eligible uses. Despite breakthroughs in the broader use of resources ushered in by the Intermodal Surface Transportation Efficiency Act (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21), long-standing restrictions and constraints continue to limit flexibility in the use of funds and in response to changing markets. As importantly, our policies and programs also have introduced similarly rigid budget structures and have reinforced the independence of

agencies, organizations, and programs that seek to serve the same customers—the traveling public. Further reducing the constraints and limitations imposed by the structure of traditional funding programs and policies is an agenda that can only be addressed by elected officials.

Nontransportation Policies

Finally, a host of nontransportation policies at the federal, state, and local levels pose another set of contradictions:

- ***Public investment policy and program requirements*** limit the use of transportation-based revenue sources across modes and facility types;
- ***Land-use and economic development policies*** encourage development patterns that traditional transit cannot serve effectively;
- ***Environmental and energy policies*** frequently call for increased service, new technologies, and increased cost without added resources; and
- ***Tax policies*** often support wasteful development patterns, limit access to private capital markets, and provide economic incentives that favor private vehicle use over alternative forms of transportation.

Unfortunately, much of the decision-making around these and other policies occurs in a highly fragmented environment in which little or no accountability or responsibility has been established for the longer-term consequences of policy or investment decisions.

The prospect of making today's transportation and transit agencies more agile and responsive in a rapidly changing world may be remote if steps are not taken to reconcile fragmented organizational roles and responsibilities and conflicting goals and objectives. Equally important is the need to embrace policies and regulations that encourage rather than constrain service integration and innovation.

Finally, elected officials must find new mechanisms to combine managerial autonomy to deliver more attractive services with increased accountability for the longer-term consequences of transit, transportation, and other infrastructure system policy and investment.



Responsibility for making changes in the "enabling environment" lies outside the authority of transit agency managers. Local, state, and federal elected officials must be active partners in the search for new paradigms in public transportation.

Questions for Readers

- 1. How fragmented is the responsibility for transportation and community development in your region?*
- 2. Are the mission and goals of public transportation organizations consistent with, or even connected to, your community's broader strategies and goals?*
- 3. Who is responsible or accountable for the long-term consequences of transit and transportation investment in your community?*
- 4. What public policies, regulations, decision-making processes, or attitudes stand in the way of more effective arrangements?*

Challenge 4

Organizational Dynamics and Culture

The organizational dynamics and culture of today's public transportation organizations represent another major challenge. The industrywide shift from private to public operations in the mid-twentieth century resulted, for the most part, in formation of single, monopolistic public transit operating agencies. In some cases, the transit function was absorbed as an operating arm of general purpose local or county government; in other cases, the transit operating responsibility was lodged in a separate regional entity or authority outside the confines of elected local government.

Since this transformation, organizational dynamics and culture in transit have been shaped by several forces that, in combination, have become significant barriers to change, limiting agency responsiveness to rapidly changing market forces and conditions and reducing public expectations of transit organizations and services. These organizational dynamics include:

- As public agencies, the agility of transit organizations is influenced by the necessary attention to legal requirements, policy-making procedures, and political dynamics associated with public service delivery. This "public character" often slows both market responsiveness, as well as changes in organizational roles and responsibilities, as the interests of multiple stakeholders must be formally and officially addressed and reconciled.
- Operating in the "public arena" results in decisionmaking processes driven by short-term, annual, or biennial budget and election cycles, with responsibility for long-term outcomes and performance diffused and indistinct among varied organizations.
- Transit organizations have traditionally been hierarchical in structure and heavily reliant on centralized, top-down decision-making.
- Transit labor interests have remained a strong, if not dominant, element in transit governance, management, and operational decision-making since enactment of the original labor protection provisions as part of the shift from private to public operation. Labor-management relations have tended to be adversarial, with reconciliation and incremental change coming about through pro forma arbitration, mediation, and negotiation processes.

"...changes will not be easy for many organizations....Part of the resistance comes from attitudes, some in both labor and management. They see changes to the way they have historically operated as a denigration of their role and status."
(John Bartosiewicz, *Metro Magazine*, May 2000, p. 69)

- Funding arrangements also strongly shape organizational dynamics and culture. The majority of transit capital funding has come from the federal government; the majority of operating funding now comes from a combination of state and local sources. The degree of local control over how resources are best used is constrained at each level. The definition of eligible expenditures and the process required to make investments are dictated largely from outside the local operating organizations.
- Chronic problems with funding availability, predictability, and reliability force management to focus on short-term budget compliance, cost control, and marginal improvements to existing services and existing markets. Couple this short-term focus with compensation and reward mechanisms based on years of service, and it becomes clear why there is little incentive for fundamental change or large-scale innovation and creativity in pursuing breakthroughs that would reshape transit's relationship to customers and markets.

All of these characteristics, as well as others, contribute to organizational dynamics and culture that

- Reinforces the status quo,
- Limits market responsiveness,
- Slows or limits the scale and pace of change, and
- Sets up "zero-sum" games between stakeholders whose communitywide common interests are often submerged.

*"...we will have to build on and from institutions that don't quite fit, cultures that don't align well, and policies and mindsets that seem to be obstacles."
(Christine M. Johnson, FHWA, Passenger Transport, published by APTA (D.C.) 11/22/99)*

Questions for Readers

- 1. Are these organizational dynamics and cultural characteristics evident in transit and transportation organizations in your area?***
- 2. Do any of these represent a more powerful constraint to change than others? Which one(s)?***
- 3. Have any efforts been made to solve or by-pass constraining organizational dynamics or cultural characteristics?***
- 4. What has been the outcome and lessons learned about pursuing fundamental change?***

Challenge 5

Focusing on the Customer's Experience

The way we assess the value of goods and services is also undergoing significant change. Access, mobility, and the quality of our travel experience—fundamental customer concerns—are emerging as key yardsticks for measuring the value of transportation services and investments. Yet the perspective of the individual customer has long been submerged in public transportation.

Transit agencies have been slow to embrace the notion that they are, first and foremost, delivering a travel experience to their riders. But the management of a service delivery system is not the same as making sure that buses depart on time or that facilities are maintained. It requires instead a deep understanding of how to manage for overall system performance and customer satisfaction.

Increasingly in other businesses and industries, however, the paradigm of production efficiency and "the bottom line" is being balanced with the addition of a new measurement paradigm based on customer satisfaction, value, and loyalty. Inability to understand and respond quickly and effectively to customers and markets are hallmarks of industries in decline.

To be successful in the future, public transportation organizations must follow the lead of other organizations that have used a heightened commitment to customer service to drive fundamental change in business processes and organizational structure. Much of this progress has involved the use of assets owned and operated by former competitors rather than forcing customers to choose between competing services. New information technologies can provide the critical link between allied service providers and customers.

*"Executives used to imagine their companies as the center of a solar system orbited by suppliers and customers. The internet changed all that—dramatically. The customer is becoming the center of the universe."
(Business Week, 10/4/99, p. 103)*

*"Quality management implies an increased focus on individual customer satisfaction."
(Jose M. Viegas,
Transportes Inovacao e Sistemas, Lisbon, Portugal)*

Market Research in Transit Agencies

"...most transit agencies do not know their market segments and are developing products and services without knowing what the market wants."

- 80% do some market research
- 72% focus on customers only
- 20% do not obtain market research information
- Few agencies do market segmentation research
- 14% use market research in policy-making
- 98% of private-sector firms do market segmentation research

(Research Circular 460, pp. 23-24)

*"The vertically integrated firm no longer needs to exist, because it's now possible, indeed even unavoidable, to disassemble all the different parts of your company's value proposition and reassemble it as an entirely new way of delivering what your customer wants."
(Halsey Minor, Chairman and CEO, CNET)*

Questions for Readers

- 1. How customer-driven is public transportation in your community?**
- 2. Is current market research on travel patterns and behavior thorough? Up-to-date?**
- 3. What procedures are in place to examine service quality and customer satisfaction?**
- 4. Is your transit agency organized to provide riders with service they value and like?**

Challenge 6

Catching up with the Digital Economy and the Information Age

A major impetus for change in business and industry is the explosion of new technologies. Industry leaders invariably are those organizations that recognize, adapt, and apply new technology most effectively in meeting current customer needs. Today's innovators use new information technologies to create unimagined products as well as new markets.

Perhaps the largest technological challenge is that posed by the explosion in information technologies. The rise of the "Information Age," or the "Digital Economy," represents one of the largest technological challenges to a public transportation industry that has historically lagged in its ability to deploy new technology. Information technology also provides the single greatest opportunity to enhance the quality of the travel experience.

The rise of the digital economy has had two fundamental consequences; the first consequence affects the customer, and the second affects service providers.

Technology and the Customer

The first consequence, from a customer's standpoint, is that growing numbers of Americans are becoming accustomed to accessing almost instantaneously any information they seek:

- Intermodal freight carriers can provide the real-time status of any package or shipment;
- Airline alliances can provide through-ticketing and fully integrated customer incentives on multiple carriers via the Internet;
- Information about almost any service or product can be found and researched and the service procured in minutes via the World Wide Web through wired and wireless technologies; and
- Automobiles are now being projected as the next new "platform" for providing the latest information and communications appliances.

Yet real-time customer information about surface passenger transportation options and status remains highly fragmented, if it is available at all. We are conditioned to expect real-time information anywhere in the world. But those expectations are not currently being met by public transportation, adding to the frustration that travelers and potential travelers feel about a public service already considered unresponsive to, if not irrelevant in, our daily lives.

We can send a package door-to-door across the continent with a single phone call and can report to senders and recipients its exact whereabouts instantaneously. Our travel expectations are now being built around this level of performance. The fact that we cannot manage the door-to-door trip for people as effectively says legions about the paradigm shift that is needed in passenger transportation.

*"...we are in the middle of a revolution in the way we do business. The revolution is telecommunications and information delivery, and I'm not sure how it is going to turn out."
(Jackie Bachrach, Research Circular 460, p.11)*



Technology for Service Providers

The second consequence of the Information Age is on business and industry. Armed with state-of-the-art communications and information technology, successful businesses are

- Tailoring goods and services to the individual, personal needs of consumers;
- "Locking in" consumers and clients through loyalty programs, "branding," and personalized marketing in ways that increase the consumer's cost to switch providers;
- Building partnerships and collaborating among former competitors to deliver the highest value to customers; and
- Serving as "aggregators" between suppliers and clients, rather than as producers, to increase innovation, market response, and efficiency.

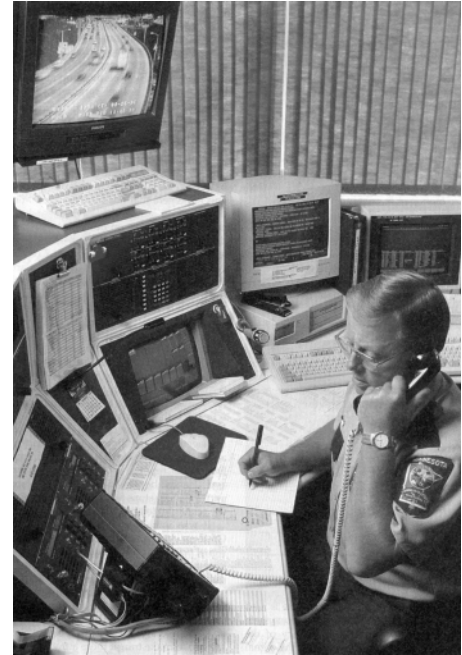
In a more practical vein, emerging information technology now allows

- Greater accountability to customers using customer-based measures of system performance,
- New data and information on the customer's experience to be incorporated into strategic business planning and decision-making, and
- New reward and incentive systems that focus on enhancing the customer's travel experience.

The challenge of new technology clearly lies at the heart of the transit industry's ability to embrace and sustain a paradigm shift in the years ahead. In many ways, the "pull" of technology will force fundamental change on public transportation organizations. The question is how quickly and effectively the industry can seize the opportunities that lie ahead.

Questions for Readers

1. *Are state-of-the-art information technologies being fully utilized in your system by managers and policy-makers? To your customers?*
2. *Can transportation and travel information be easily accessed and integrated by individuals, agencies, and organizations in your region?*
3. *Who has responsibility for bringing state-of-the-art information technology into the urban transportation arena?*



TCRP Synthesis 35, "Information Technology Update for Transit," describes how several agencies are elevating and organizing round information technology: "...transit agencies cannot accomplish their IT strategic goals without the establishment of a technology investment process (TIP), the creation of a technology advisory committee (TAC), and construction of an appropriate department." (TCRP Synthesis 35, Transportation Research Board, Washington, D.C., 2000, p.9)

Chapter 3

EMERGING NEW PARADIGMS

How Are Business and Industry Responding?

Business and industry around the world are undergoing fundamental changes in response to the same forces and factors that confront our public transportation organizations. From these experiences, several broad lessons emerge that may help shape a new paradigm for public transportation. As part of these changes, business and industry are:

- *Shifting away from the concept that service must be provided using facilities and equipment owned by the company;*
- *Using the power of information technology to link and measure individual customer needs and the character and quality of services provided;*
- *Shifting away from minimizing cost and price to a strategy that recognizes the willingness of consumers to pay more for higher-quality services, convenience, and products; and*
- *Restructuring management to decentralize certain decision-making power, while centralizing decision-making on strategic issues such as service levels, service quality, and pricing.*

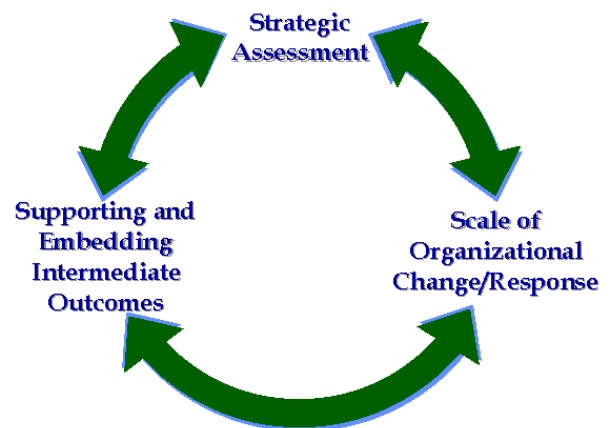
Hardly a day passes without news of compelling and fundamental change in business and industry. Business literature, as well as the popular press, provide regular glimpses of new paradigms breaking through at several different scales:

- New collaborative partnerships are being formed among traditional competitors,
- Basic business practices of all kinds are being redesigned, and
- Individual organizations and entire industries are being restructured.

Paradigm shifts and fundamental change are driven by

- Crises in organizational performance—breakdowns in critical systems, declines in market share, changes in government leadership or policy, falling shareholder value, and decreasing profitability;
- New mandates imposed on organizations from outside sources; and
- An explosion of new technologies that offer irresistible opportunities—and imperatives—to introduce new products and services and to deliver them in fundamentally new ways.

*"...business—and every other organization today has to be designed...to create change rather than react to it.... The starting point is not the company's own performance. It is a careful record of the innovations in the entire field during a given period."
(Drucker, p. 38, 119)*



Regardless of the motive for change, there is widespread recognition that an organization's long-term success demands far greater agility and responsiveness to customer needs than traditional business models provide.

Paradigm Shifts in Business, Industry, and Public Services

The industries and organizations mentioned below have gone through or are in the midst of fundamental change. Examples are drawn from public and private industry as well as transportation and other sectors of the economy. Each of these examples and others will be described in more detail in subsequent reports from this TCRP project on new paradigms for public transportation.

Paradigm Shifts in Major Industries

A number of U.S. and global industries have undergone major restructuring in recent years, largely due to declining performance, heightened competition, and prolonged reluctance to embrace new technologies.

Intermodal freight companies have abandoned their fixation with maximizing use of their own assets and have partnered with former competitors to focus on improving customer service as part of a new "obsession for the customer." The "logistics revolution" has decoupled production of the service from key strategic functions—service design, pricing, and performance monitoring.

Airlines alliances have been formed on a global basis among former competitors—Star Alliance (United/Lufthansa, Singapore Air, New Zealand), Oneworld (American Airlines/British Air, Japan Airlines, Qantas), KLM/Northwest/Alitalia Partnership—to "coordinate operations and provide passengers with seamless service across multiple carriers" (*Wall Street Journal*, June 23, 1999).

The telecommunications industry has introduced new, personalized technology and new services at breathtaking speed and has lowered consumer prices. Increasingly sophisticated market research allows companies to recognize individual consumer needs and price sensitivity, and to reinforce brand loyalty in an increasingly competitive market place.

The Cisco Systems Model in the telecom industry is among the most successful Internet companies in the world. Cisco Systems has embarked on far-reaching changes to the traditional business model. All production is outsourced, as is 90 percent of subassembly and 55 percent of final

"Business growth and business expansion... will increasingly have to be based on alliances, partnerships, joint ventures and all kinds of relationships with organizations...."
(Drucker, p. 67)

What the consumer experiences as a 'seamless' product....



"We can go from quote to cash without even touching a physical asset or a piece of paper. You've heard of 'just-in-time manufacturing.' Well, this is 'not-at-all manufacturing.'"
(Donald J. Listwin, Executive Vice President, Cisco Systems)

assembly. Nearly 80 percent of Cisco's sales are generated on its website, and suppliers, not Cisco, ship direct to Cisco customers. Supplier activities are, however, monitored around the clock by Cisco via the Internet to assure product quality.

Energy producers, independent power suppliers, and utilities have shifted from a competitive posture to cooperative alliances and partnerships among utilities and natural gas suppliers and to shared use of power distribution grids in the interest of increasing customer loyalty.

Steel companies, once giant, monolithic, integrated enterprises have cut back to core functions, outsourced a wide range of activities, introduced new mini-mill technologies for niche markets, and found workers willing to trade wage concessions for management participation.

Paradigm Shifts in Public Services

New paradigms are being introduced in the public service sector as well. These initiatives are also grounded in a new commitment to customer service made possible by collaborative partnerships and new technologies.

The U.S. Postal Service mandate to become self-supporting has led to the rapid introduction of new, customer-oriented technologies and business practices to broaden consumer options, recapture market share, and rebuild a loyal consumer base. New customer services such as bar-coding, Smart Cards, hand-held scanners, online purchases, tiered services with variable pricing, and franchise agreements with private vendors like Mail Boxes, Inc., are now featured by the U.S. Postal Service.

Charter school reform has arisen from dissatisfaction with educational attainment, unresponsive administrators, collapsing physical plant, and limited resources in the public school system. Citizens, political leaders, and teachers' unions have come together to launch new charter schools under local control to encourage innovation, improve performance, and heighten responsiveness to education consumers.

The city of Louisville initiated its CityWork program to continuously engage employees and management across departments in developing solutions to the city's most intractable management problems. With more than 200 reforms accomplished, business processes and organizational structures have been permanently altered and the ability to innovate has been institutionalized.

*"When we contemplated a future as a vertically integrated company, with competition coming in and eroding the franchise, we were not in a position where we could stand still and survive for long."
(Bill Coley, President, Duke Power)*

"A mature industry...needs to be managed for flexibility and rapid change. A mature industry shifts from one way of satisfying wants to another. A mature industry therefore needs to be managed for alliances, partnerships and joint ventures to adapt rapidly to such shifts." (Drucker, p. 57).

*"The defining deal for the next decade and beyond may well be the alliance, the joint venture, the partnership."
(Business Week, 10/25/99, p.106)*

*"We were trying to change the culture and mindset of the day-to-day business of city government."
(Louisville Mayor Jerry Abramson, 1995)*

*"CityWork has proved that engaging workers with different perspectives and experiences in structured problem-solving can produce breakthroughs on problems that have confounded managers, workers and union leaders for years. CityWork demonstrates that a culture of innovation can become a permanent fixture of local government."
(Former NJ Gov. James Florio, 1996)*

Paradigm Shifts in Surface Transportation Organizations

Within the surface transportation industry, there are also important examples of fundamental change—paradigm shifts—in the structure of organizations, the nature of business practices, and the relationships between customers and competitive service providers.

In some areas, totally new roles are being assumed by organizations that once had only traditional responsibilities. In other areas, the institutional slate is being swept clean and entirely new organizations and institutions are being designed and empowered to address transportation needs.

*Reminder: A paradigm shift is not evolutionary.
"Organisms by design are not made to adapt...
beyond a certain point. Beyond that point, it's
much easier to kill them off and start a new one
than it is to change them."
(Kevin Kelly, "Out of Control" in Peters, p.68)*

Emerging Paradigms Outside the United States

London Transport has been operating since the 1980s under a model of "managed competition" imposed as a matter of national policy. Institutional roles and responsibilities as well as organizational structures, have changed fundamentally. Centralized control is exercised over the management of services in the region. Assets and operating responsibility have been shifted to service providers acting as contractors. Recent breakthroughs in measuring and monitoring service quality (which will be described in Chapter 4) are helping to shape a new approach to managing risks, rewards, and incentives.

*Over the past decade, the Greater London area
has become one of the most extensive
"test-beds" in the world for new paradigms
in the management and governance
of public transportation.*

Gothenburg, Sweden, is using new information technology to introduce a fully automated trip-making and dispatching service called "Planet." The system integrates and consolidates access to all paratransit services in the region, providing a seamless customer experience by coupling centralized service management and information with contract service providers.

"In ***Hamburg, Germany***, there is a tradition of cooperation in the field of public transport. In 1965, transport companies and politicians established the first Transport Alliance in the world. 'One schedule, one tariff and one ticket,' was the motto of the Hamburg Transport Alliance (HVV)....The HVV is charged with the task of planning, organizing and optimizing public transport in the region....The operative business is vested in nine transport companies entering into co-operation agreements with HVV."

Peter Kellerman, CEO, HVV

The ***Hong Kong Mass Transit Railway Corporation (MTRC)*** has developed fully integrated airport ground access from downtown Hong Kong to Chep Lap Kok International Airport. MTRC redefined its role to provide a seamless package of services including baggage handling, boarding

*MTRC also owns and manages some
29,000 apartments and about four million
square meters of office and commercial space.
Real estate revenues contribute almost 20 percent
to the bottom line of the transit company.
A new development program worth over
US \$10 billion is underway with private
developers bidding for the opportunity.
(Passenger Transport, 10/25/99, p. 4)*

passes, flight schedule information, express services with premium fares, and complex financial agreements with the airlines that have taken MTRC far from its traditional mission and function. Today, similar arrangements are being implemented by the Metropolitan Atlanta Rapid Transit Authority system in Atlanta, Georgia.

Dutch National Railways (OVR) consolidated and fully integrated the customer information services that had been independently provided by 24 separate service providers, nationwide, using 50 different telephone numbers. All station attendants have full, real-time schedule information in hand-held appliances. The door-to-door trip-planning functions of these agencies have been enhanced, relocated, and consolidated into a single, separate agency.

The Greater Vancouver Transportation Authority (GVTA) was formed in 1998 because local leaders concluded that existing funding and institutional arrangements for transportation were inadequate to meet the needs of the region. A wholesale institutional realignment produced a single entity with responsibility for regional transportation planning, demand management, vehicle emissions inspections, transit service levels, regional highways, arterials, bridges and ferries, transportation budgets, and financial agreements. Separate operating subsidiaries and service providers address distinct travel markets and customer needs, all under the single "brand name" of TransLink.

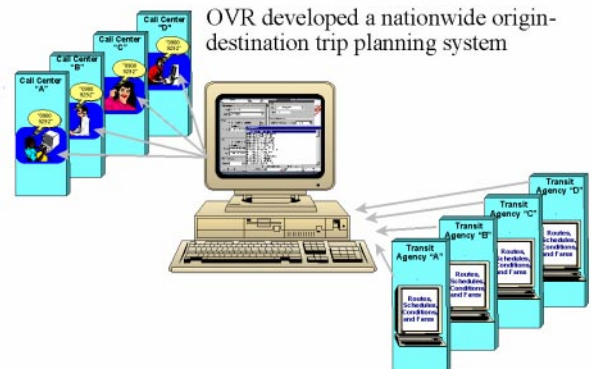
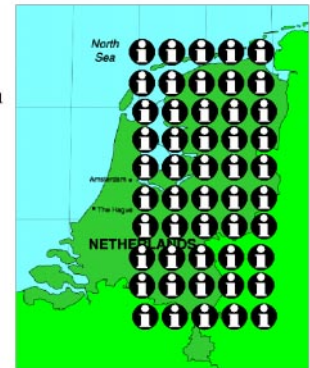
Emerging Paradigms within the United States

E-Z Pass is a one-tag electronic toll collection system implemented through the unique collaboration of top executives of 11 agencies in five states. E-Z Pass has reduced waiting times at bridge and tunnels between 50 and 100 percent in some cases.

TRANSCOM provides information about roadway incidents, member agency construction programs and schedules, and ITS technology support across 15 cooperating transportation and traffic agencies in New York, New Jersey, and Connecticut. Information needs, technology, and a far-sighted strategy produced a unique regional transportation management collaboration on an operational level that recently was converted to a private nonprofit entity whose market is expanding.

San Francisco Metropolitan Transportation Commission (MTC) has broadened its mission and role far beyond that of a typical metropolitan planning organization (MPO). MTC serves as the region's toll authority; sponsor and manager of the regional "smart card" technology initiative, TransLink, traveler information system, and freeway incident

Before OVR, there were 50 separate telephone numbers for transit information in the Netherlands



OVR developed a nationwide origin-destination trip planning system

"...some of the basic organizations that we've set up to deal with and help to deliver transit services are also major problems....We can't change that without rethinking the structure... 'if we want to be successful 10 and 20 years from now, we have to set up agencies that are more dynamic than they are today.'"
(Former Pres. & CEO of BC Transit Bob Lingwood/Mass Transit, N/D 1998)

"...one massive civic project that not only works, but is catching on much faster than anyone expected...."
(New York Times, March 25, 1997)

management system; and operator of a pavement management system that supports more than two-thirds of the region's local governments.

The ***Metropolitan Tulsa Transit Authority (MTTA)*** serves as broker, contractor, and, in some cases, service provider on a fee basis to community action agencies and serves as the broker and coordinator of Medicaid services statewide. This new business model signals a paradigm shift in MTTA's core business from vehicle operations to customer mobility and service quality oversight.

The ***Georgia Regional Transportation Authority (GRTA)*** was created in April 1999 in response to an air quality and transportation planning crisis. GRTA has \$1 billion in direct bonding authority as well as final authority over transportation investments in the state's air quality nonattainment areas, authority to mediate transportation and air quality disputes, and authority to withhold state funds in the event of an impasse.

The ***Pasadena Metro Blue Line Construction Authority*** was established to undertake one of the region's rail projects that had been stalled by a variety of problems facing the Los Angeles Metropolitan Transportation Authority (LAMTA). The establishment of an independent, corridor-level authority clearly represents a departure from traditional monolithic models of regional transit management and governance, placing substantial control and resources closer to local leaders and residents.

The examples above illustrate only a handful of the fundamental changes—paradigm shifts—that are unfolding across the country and around the world. Each of these examples provides a point of departure in the search for paradigm shifts within public transportation. Among the emerging lessons are

- Matching the individual customer's needs, the level of satisfaction, and the quality of services are becoming an organization's critical strategic responsibilities, not direct service production;
- Decision-making authority on a strategic level is being separated from decision-making authority on a service production level;
- Emerging information technologies are available to monitor these strategic interests; and
- Service need not be provided using only the organization's own facilities and equipment.

"If the Georgia Regional Transportation Authority succeeds in its mission, it will send a powerful message that in contemporary Metropolitan America, where the lines between urban and suburban problems are increasingly blurred, regional cooperation is both necessary and politically astute."
(Innovation brief, V. 10, No. 4, Jul/Aug 1999)

Organizational Change at Ford Even the Ford Motor Company anticipates Fundamental restructuring. Jacques A. Nassar, Ford CEO recently said: "[we plan to] move away from centralized authority." The vision is for "...executives to run independent units—cut loose from a stifling bureaucracy and held far more accountable for success and failure.... You've got to break down the business into the smallest possible units to give the employees in them authority and accountability. The central idea is to create bite-sized, highly accountable regional brand units that can get close to their target customers' tastes and needs."
(Business Week, 10/11/99, p. 43)

Questions for Readers

- 1. Are corporate or civic leaders in your community pursuing fundamental changes similar to those described above?*
- 2. Are your transportation organizations moving in any of these directions?*
- 3. What obstacles stand in the way of pursuing these new ways of doing business?*

Chapter 4

ARRIVING AT A NEW PARADIGM FOR PUBLIC TRANSPORTATION

From Managing Transit Assets to Managing Transportation Services

The new paradigm is not a single model or organizational formula that can be precisely drawn or embraced by every agency or community. It is, however, a fundamental shift in mission and orientation, from today's preoccupation with managing the use of a single agency's assets to a strategic focus on managing service quality for customers.

As part of a new paradigm, this fundamental shift in mission is leading to integrated operation of equipment and facilities and, in some cases, clear organizational separation or "decoupling" of the responsibility for service design, monitoring, and feedback from the actual production of the services. The emerging new paradigm

- *Reestablishes the customer's experience as the central, strategic focus of management;*
- *Relies on expanding partnerships and alliances to assure responsiveness to customer needs;*
- *Is built on state-of-the-art information technology that provides real-time information on market requirements and service quality throughout the organization;*
- *Provides a basis for reintroducing meaningful incentives for innovation and improvement at all levels of the organization; and*
- *Separates decision-making authority on a strategic level from decision-making authority in service production..*

The emergence of a new paradigm can be seen more clearly in the combined experiences of

- *The intermodal freight industry*, in which customer focus, technology, and collaborative ventures have come together in ways that have totally altered long-standing business models and corporate cultures;
- *Information technology* initiatives in the European community that have provided the vehicle for altering the transit mission from "service provider" to "mobility manager" at a scale that can be applied in areas of all sizes;
- *The international airline alliances*, in which airlines have turned to partnerships to stay competitive and survive in a global context; and
- *The Greater London area*, which has become the most extensive and wide ranging "test bed" in the world for new management, governance, and institutional arrangements in public transportation.

*"Wealth in the new regime flows directly from innovation, not optimization; that is, wealth is not gained by perfecting the known, but by imperfectly seizing the unknown."
(Kevin Kelly, Wired Magazine, Peters, p. 29)*

*"Organizations will be critically important in the world, but as organizers, not employers."
(Charles Handy in Peters, p. 239)*

*"Technology and competition are pulling down the monopoly."
(Business Week, 10/11/99)*

*"Everyone assumes you have technology. Now it's all about business models. And what really validates your business model are your partners and your customers."
(Business Week, 10/25/99, p.110)*

Each of these experiences is described in more detail below to provide a clearer picture of the emerging new paradigm.

A Closer Look at Paradigm Shift in the Intermodal Freight Industry

The logistics revolution in intermodal freight and overnight package delivery provides several examples of how the mission of individual businesses has changed fundamentally. The experiences demonstrate how new information technologies support the shift to a customer-based mode of management and operation and how the power of collaborative partnerships can increase agility and responsiveness to customer needs.

Throughout the intermodal freight industry

- *Door-to-door service and wide-ranging logistical support are now the key products;*
- *Those products are often provided by partners that formerly were competitors;*
- *New measures of performance now chart the quality of the customer's total transportation experience, the success of the organization, and frame the incentives to make improvements at all levels of the organization; and*
- *The intermodal freight industry has learned to track both the efficiency of production and the user-based experience with the product.*

An Evolving Management Paradigm in the Intermodal Company

Between 1980 and 1985, a major paradigm shift emerged from several large freight transportation companies, such as the American President Lines (APL). The basic organization of the hypothetical company involved vertical divisions, each designed to manage a specific mode. In this context, APL was mainly viewed as steamship company that did some collection and distribution to support its steamship operations. In this model, the performance of the system was measured in terms that are specific to each mode.

The logistics revolution empowered the companies to offer "door-to-door" services, and a new paradigm emerged throughout the intermodal freight industry. In this new paradigm, the company applies indicators of performance that attempt to measure the extent to which the company has produced the product desired by the customer, a door-to-door trip rather than a single segment of a trip.

Principles of a New Paradigm

1. *Increase the power of the central, publicly owned and publicly operated entity to design, track, and evaluate component elements that together provide mobility to the region.*
2. *Allow for a decreased role of the central transit agency in the direct provision of services, when appropriate.*
3. *Increase incentives for line managers to improve the quality of service whenever possible.*
4. *Eliminate the assumption that the public is best served by minimizing the price of service. Acknowledge the necessity to tailor services and products to meet any customer's needs.*
5. *Develop technology to track the needs of the rider and the quality of service, as perceived by the rider, i.e. from door to door.*

A dispatcher for SeaLand/CSX sends a loyal customer's time-sensitive container shipment to Asia on a ship owned by the SeaLand's long-time arch rival, Maersk Lines.

"...decision-makers at SeaLand Services, Inc., a company recognized as an innovator of containerization and intermodal transportation, for many years believed that working alone with dedicated assets (ships, containers, chassis, terminals, etc.) was the way to maintain a competitive advantage in the marketplace. During the last decade, the operating philosophy at SeaLand evolved from one of being driven by the market, the competition and the cost to one of an obsession for the consumer...." In 1991, SeaLand entered into a partnership in the trans-Pacific trade routes and inter-Asia with Maersk Lines of Denmark. The partnership was focused on customer benefits, including improved vessel schedules, enhanced frequency, superior transit times, and rationalization of terminals. (Jack Helton, a Vice President of SeaLand/CSX)

The concept of creating the product desired by the customer (keeping the loyalty of that customer for further business relationships) has replaced the concept that all services have to be provided by the company itself, in former Sealand/CSX Vice President Jack Helton's words, "working alone with dedicated assets."

In effect, the U.S. intermodal freight industry has decoupled the command and control function, which designs services for the customers and tracks the quality of those services, from the question of what entity actually provides the service.

Tracking Performance in the Intermodal Company

To operate under this new, consumer-based paradigm of intermodal freight, the company must have the ability to track the quality of performance of the system and to provide an incentive to the managers who improve that quality. Measures of performance that document the efficiency of production for each mode help management to evaluate, incentivize, and reward the manager in charge of a rail operation, a maritime operation, or a distribution function.

But the new intermodal paradigm imposes an *additional* strategic level of evaluation on the overall system. The manager of a major intermodal company, such as United Parcel Service or Federal Express, can track the extent to which the door-to-door times promised have actually been achieved. The manager is able to track the performance of the company expressed in terms of the experience of the customer.

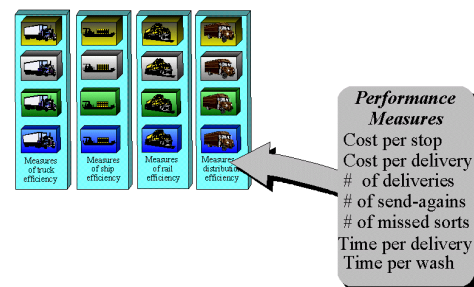
In practice, one set of measures tracks the efficiency of production while a second set of measures—more strategic, command-and-control in nature—tracks the system through the experience of the user. Each type of performance measurement is appropriate at a different scale, and the distinction between the two helps to clarify how mission and responsibility are viewed within the organization.

In effect, the strategic function and the production function have been decoupled. In some cases, the design and monitoring of services by the intermodal company—the emerging strategic function—actually replaces the company's original function of providing services with dedicated assets. The intermodal company remains responsible to the customer even though the company providing the transportation supply may or may not be known by customer.

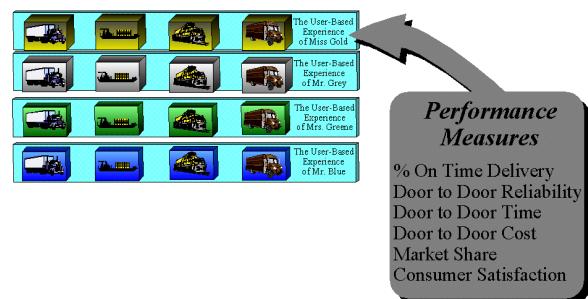
With a critical just-in-time parts delivery stalled by a train derailment, a logistics manager for the transportation company identifies the closest alternative source of parts and flies them half way around the world at great expense with an unassociated carrier. The client manufacturing plant avoids a shutdown.

*"We try to keep strategic direction located as high as possible in the organization, while keeping accountability as low as possible within the organization."
(Tom Hardeman, former Vice President of UPS)*

Mode-based Performance Measures



User-based Performance Measures



Each of the fundamental changes that has taken place in the intermodal freight industry illustrates that

- *Customer needs are best served through shared use and integrated operations of facilities and equipment, and*
- *Responsiveness and service quality can be advanced most effectively through integration of new information technologies with new management systems that support and track service quality and customer response.*

The Intermodal Freight Paradigm Reappears in the Airline Alliances

In the intermodal freight industry's "obsession" with the needs of the customer, the bond between the company and the customer becomes more important than the provision of service by the company's own assets and facilities. The airline industry adopted policies driven by the same management paradigm a decade after the paradigm's adoption by the intermodal freight industry. In the "alliances" entered into by most major airlines (Star Alliance, Oneworld, etc.), *the actual provision of service has been decoupled from the command and control function that designs, prices, monitors, and tracks the quality of the services* based on a detailed understanding of the market strategies needed to capture and retain the loyalty of the customer.

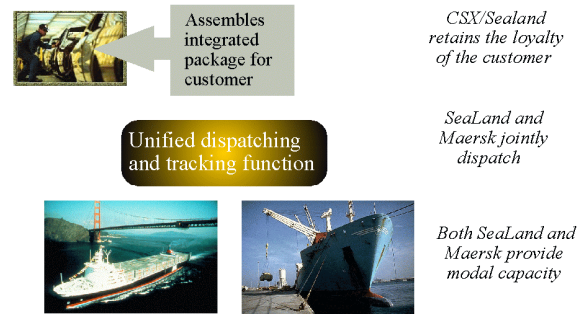
In the late 1990s, Delta Air Lines could sell a Delta ticket from Dubuque, Iowa, to Salzburg, Austria. The single ticket actually involved the use of many partners' assets:

- From Iowa to Cincinnati—ComAir
- From Cincinnati and Zurich—Swissair
- From Zurich to Salzburg—Austrian Airlines

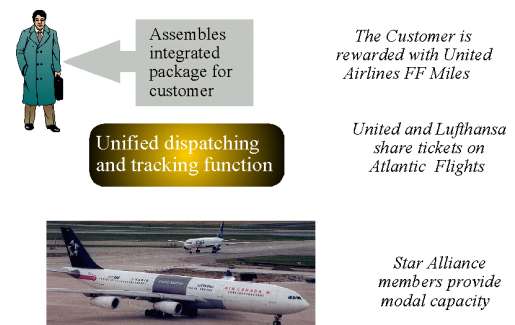
The ticket was issued by Delta, complete with whatever frequent flyer miles and upgrades are offered the loyal Delta customer. Complaints or concerns about service quality are handled by Delta; the tired traveler may or may not have known the name of the carriers providing the service.

United Airlines, Northwest Airlines, and American Airlines all make similar arrangements. Today, no U.S. carrier even tries to use its own dedicated assets to fly the customer between Dubuque and Salzburg.

Rationalization of Shipping - 1990



Formation of the Airline Alliances Mid 1990s



Just as the intermodal freight industry discovered the need to utilize the assets of its competitors, former rival international airlines now work together meet the needs of their customers:

- *Service is provided by a variety of carriers.*
- *The relationship with the customer is retained and reinforced by the core business unit.*
- *Information technology allows the tracking of the experience of the customer.*

Signs of a New Paradigm in Paratransit

The European Union (EU) has been examining the future of the transit industry, with a particular focus on the technologies and institutions dealing with providing public transportation to areas of lesser trip density — a situation common to most U.S. transit organizations. The EU's System for Advanced Public Transport Operations (SAMPO) Project has launched several projects throughout Europe, including an advanced program of paratransit in Gothenburg, Sweden.

Gothenburg has developed a centralized, automated trip matching and dispatching program called "Planet." Because specialized services were being provided by hospitals, by schools, and by social services designed for the elderly and isolated, analysts in Gothenburg determined that economies of scale could be produced if all the social services agencies combined their operations.

The application of the Planet software has created a separation between a highly sophisticated command-and-control center and the actual provision of services.

The joint dispatching office is part of a city department and serves as a highly developed mobility management center. Importantly, this specialized transit agency owns no vehicles and has no drivers on its payroll. At the center of this mobility management operation is a software package that virtually eliminates the separate tasks of manual route planning and dispatching:

- The client calls in to a telephone operator;
- The client provides an identification number, establishing the right to receive a specific kind of service;
- The telephone operator enters the origin, destination, and desired pick-up time;



- The Planet software assigns the trip to a service providing contractor in a matter of seconds; and
- The Planet software informs the user of the pick-up time.

More than 6,000 trips a day are dispatched for social service agencies ranging from hospitals, to schools, to elder care.

Every 3 years the organization asks for bids for the provision of taxi and group services. Operators are selected, with particular reference to their base of location. Costs are negotiated, often based on the distance of the rider from their home base. The operator is usually a licensed taxi operation and normally has a full set of clients above and beyond the work done for the agency. The paratransit agency has gone further than any other to become an automated command-and-control center with an ability to design, monitor, and evaluate the mobility services it offers to its clients.

Regular regional transit service in Gothenburg is managed in much the same way. The regional transit agency does not run any transit services. City bus lines are provided by companies whose stockholders are private, and streetcar lines are run by companies directly owned by the municipalities.

The advances made in the use of information technologies in Gothenburg, Sweden, and elsewhere in Europe are beginning to receive attention in the United States. The implications are profound:

- *Detailed knowledge of individual traveler needs can be available, managed, and used to match appropriate services instantaneously.*
- *This knowledge becomes the basis for shifting the public role and mission from asset management to service management and integration.*

Applying the Paradigm Shift to Public Transportation in London

Lessons from the intermodal freight industry, from the international aviation industry, and from pioneering work in paratransit have in common the strategic application of user-based measures of performance to complement traditional measures of efficiency in service production. In London, these revised management approaches are being applied in one of the largest public transportation markets in the world.

"The central thrust of the Division of Transit Services is mobility in general, not a particular brand of service....If anything has been learned from the County's experience with Ride-On over the last 20 years, it is that flexibility is essential."
(Carolyn Biggens, Montgomery County, MD.
Research Circular 460, p. 46, 49)

The organizational structure of the Planet system effectively separates the management of services from the actual provision of services by contractors. Importantly, the city agency owns no vehicles and employs no drivers or mechanics.

London Transport Bus (LTB)

- London Transport provides integrated service to the customer
 - Tickets, passes, information, coordination between modes
- LTB is a logistics center that designs, tracks, and evaluates services on behalf of the customer.
 - Information technology allows the monitoring of all services
- The LTB has *outsourced* the task of providing modal capacity
 - LTB does not own any buses
 - LTB does not provide modal capacity

In London, public transportation services are provided by London Transport through two separate divisions: London Transport Buses (LTB), and London Underground Lines (LUL).

- LTB contracts all bus operations out to private companies, and
- LUL operates all services within the public sector (although the private sector will become involved in the provision of capital infrastructure).

Within both the bus and rail divisions, London Transport has developed a new set of management procedures in which performance is measured both in terms of the efficiency of production and in terms of the experience of the user. *The ability of management to evaluate the quality of service provided through disciplined applications of these measures may well prove to be more important than the question of whether the actual service is provided by a "private" or "public" company.*

Tracking the Experience of the User at LUL

LUL has been evolving new methods of evaluating the quality of its services. In the evaluation of service on a given Underground line, the monitoring system formerly examined only the performance of the train, including travel times and reliability. Now, new measures include a composite of the waiting time to get a ticket, the waiting time to access the elevator or escalator, the ability of the platform to process the volume of persons with one train, the train travel time, and the time to exit the station. *This approach is an attempt to track and evaluate the actual experience of the customer, rather than the experience of the service producer.*

At present, the performance of each Underground line is evaluated quarterly through the application of 17 Key Performance Indicators established in the business plan for each transit line. The major change in the method of service evaluation is the development by London Transport of the *Mystery Travel Survey*, which provides consistent quantified descriptions of experience of the user in the Underground environment, from the amount of litter to the smell in the walkways. In this new quality-control program, a team of trained market research specialists plays the role of the "Mystery Shopper" and evaluates the services and facilities from the vantage point of the consumer. These quarterly evaluations are prepared in the Market Planning section of London Transport, in a spreadsheet with rolling 12-month averages, a trend calculation, and a "traffic light status" of "red, yellow or green."

From the London example, one could observe that it is not necessary for the local public transportation organization to run services, to build services, or to manage the details of construction. What then is left? The responsibility to track and analyze services in terms of how well they meet customer needs and oversee the refinement of those services based on the result of that tracking process.

The Functions of London Transport Buses

Design and run the tendering program
Determine routes
Specify frequency
Set quality and safety standards
Monitor quality and safety standards
Set vehicle capacities and minimum standards
Accept schedules prepared by operators
Set fares
Supply and maintain ticket machines
Manage revenue apportionment
Provide revenue data
Provide revenue protection at policy level
Provide and maintain infrastructure
Provide emergency communications capability
Provide incident management capability
Market service at the systemwide level
Act as liaisons with other agencies, bodies
Underwrite major network infrastructure investments

The Functions of Private Bus Operators

Contribute to service planning
Develop and submit bids
Develop schedules and staff rotations
Maintain vehicles
Recruit, train, and manage staff
Manage day-to-day operations
Provide data to London Transport Buses
Provide supervision of service to maintain quality and address disruptions
Control pass use and collect on-board revenue
Provide and maintain radio equipment
Market services locally to London Transport Buses standards

"We will have to learn to establish new definitions of what 'performance' means in a given enterprise, and especially in the large, publicly owned enterprise."
(Drucker, p. 60)

"An important element in designing and operating facilities to improve value to users is to collect information about what kind of value users generate from using the facilities."
(Jonathan L. Gifford, Transportation Quarterly, Fall 1999, p. 62)

Thus, the line manager at LUL is continually evaluated in terms of a series of measures, some of which measure the efficiency of production and some of which measure the quality of the product as experienced by the user.

A New Organizational Structure: Market Research as a Core Business Unit of London Underground

The changing location of the London Underground Marketing Department over two decades illustrates the emergence of a new management paradigm:

- In the 1980s, the market research function was seen as something done within the public relations and advertising arena;
- In the 1990s, the concept of a "core business" was adopted but the marketing department was left outside of the core business unit; and
- In late 1999, a new management structure was inaugurated that included the integration of the marketing department into the core business unit.

With the advent of the Mystery Shopper program, the *market research activity is seen as an essential part of the core business function, concerned with the design, tracking, and evaluation of the company's product.* Over the 20-year period being observed, market research moved from being seen as a tool to build advertising and public relations schemes into a core unit of service design and evaluation.

London Transport Buses: Developing Centralized Control Over Private Service Providers

The London Regional Transport Act of 1984 placed London Transport under the control of the national government. By 1994, London Buses Limited had sold off all of the 11 companies it had established. It was out of the business of owning and operating buses. But in London, unlike the rest of the country where full deregulation was introduced, the role of service design and quality control was retained by the public sector.

Mechanisms of Public Control

Tracking and Monitoring Privately Provided Service

- London Transport Buses has developed two powerful management systems to award or deny incentives to the private bus operators
- "Countdown" data will document the efficiency of the performance of the modal carrier
- "Mystery Shopper Survey" documents the performance of the carrier as experienced by the user

According to London Transport, the management system consists of

- Increasing progressively the level of competitive tendering;
- Adding managed competition for the supply of services;
- Privatizing LBL bus operating companies in 1994; and
- Integrating fares, services, and information provision — this includes coordination with rail services.

Implications of Public Management of Contracted Service

Ridership. The results of London's strong public management of the contracted services, when compared with the consequences of deregulation elsewhere in England, is dramatic. According to many observers, bus patrons outside of London experienced a significant decrease in the quality of bus services, as operators flocked to provide extra service on high-volume routes and provided lower-quality service on the rest of the system. On the London system, with its managed public control of contracted services, ridership of bus routes has increased by 23 percent since the changeover. This can be compared with a startling *loss* of 23 percent for the large metropolitan areas outside of London. This is not the result of lack of services in the aggregate, as the total amount of vehicle miles of operation has risen in both cases — by 25 percent in London and 21 percent in the other large metro areas.

Cost. A decade of close public management of private operations has had clear cut implications for the cost of bus service, particularly when seen in terms of net subsidy per rider. Examining cost per journey, London has experienced a 32 percent decrease in trip cost, while the other large areas experienced no decrease in per trip costs between 1986 and 1996. In real dollars, it is calculated that the cost of a bus ride has increased by 37 percent in London, while it has increased by 57 percent in the other metro areas. Given the increase in fares, the increase in ridership, and the lowering of operating costs, a profound change has occurred in overall subsidies. In London, the subsidy per journey has dived from 23 pence in 1986 to 5 pence in 1996; in this decade, London went from the highest subsidy per journey to the lowest, when compared with the other metro areas, the rest of England, or all of the United Kingdom.

The Development of Incentives for Service Quality on London Buses

In the case of LUL, the manager of the each line is held accountable for the quality of service provided, measured both in terms of the efficiency of production and in terms of the total experience of the consumer. In the case of LTB, the private service provider is held accountable for the quality of service provided in *both* of these dimensions.

Measures of Production Efficiency

Four measures are used to evaluate service production of the private bus service providers:

1. Mileage operated (excluding traffic and externally caused reasons),
2. Mileage operated (including the above),
3. Regularity of high-frequency service, and
4. Punctuality of low-frequency service.

These four traditional measures of service production monitor and track the characteristics of service delivery that are easiest to quantify. Mileage operated, excluding traffic and externally caused reasons, is measured in order to provide penalties to the operator when service is not provided for reasons such as lack of availability of the bus or lack of personnel to operate the bus, breakdown of bus on route, and so forth. The contracts are drawn to provide distinct economic sanctions for service not provided.

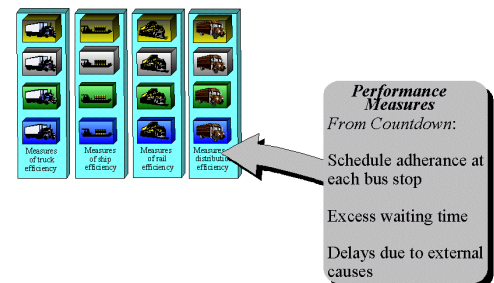
High-frequency services are judged in terms of the amount of waiting time experienced by the passenger over and above the promised interval between buses. By way of example, excess wait time in 1998 was about 1.75 minutes, as compared with 2.7 minutes in 1988.

Lower-frequency services are examined in terms of the published departure times. By way of example, in 1998 nearly 70 percent of buses left their scheduled departure points on time, as compared with about 60 percent a decade earlier.

Measures of Performance as Perceived by the Customer

All of these measures of performance can be characterized as describing the service produced. Describing the customer's experience with that service is a more challenging task. Two

Mode-based Performance Measures



years ago the methods used to track customer experience changed radically. Previously, the London Transport Household Survey was undertaken, asking each interviewee to recall his or her recent experiences with the public transportation system. In the season of 1997-1998, a new process was started in which 36,000 interviews per year are conducted with customers who have just alighted from a London Transport bus. Now, the data from the Mystery Traveler Survey can be applied to the evaluation of the service providers. As described for the LUL (above), a trained staff of market research professionals examines the service through a highly specific set of definitions that can be rigorously replicated in a systematic manner.

The public's perception of 20 factors are summarized in 6 general areas:

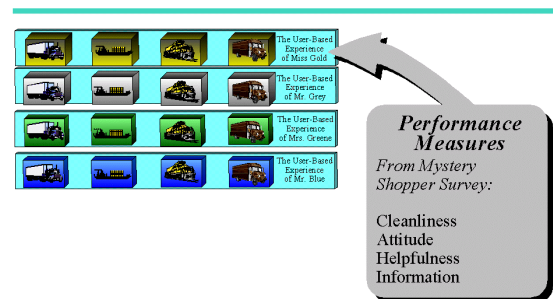
1. Cleanliness,
2. Condition of the bus and bus stop,
3. Information,
4. Staff,
5. Service, and
6. Personal Safety.

Incorporating Service Quality into the Selection and Evaluation of Service Providers

The quality of service documented in the evaluation process will soon be used to provide incentives to the private service provider. Presently, LTB is on the verge of creating a new form of incentive-based contract. Now, the public management unit has the ability to monitor the performance of the private operators in terms of both measures of production and measures of the service as experienced by the user. The Mystery Travel Survey may be incorporated into the new incentive-based service contract now being developed at LTB. "Although not currently used for incentive purposes, MTS [the Mystery Travel Survey] is likely to become part of a future scheme," stated LTB in early 1999.

A fundamental characteristic of the private intermodal freight model has been the ability of the company to "track," to monitor the performance of the system, and to take appropriate remedial action based on the data collected in that tracking process. At present, only one measure of performance is written into the private bus operators' contract, which calls for a direct financial sanction—the number of miles of service not provided unattributable to outside causes.

User-based Performance Measures



Regardless of which structural approach is used to "decouple" policy from service management, the principal focus of managing services on the street becomes the quality of the trip — the user's full travel experience. The core activities required to carry out this responsibility include

- Monitoring and tracking market needs, customer satisfaction, and quality of service;
- Creating appropriate service strategies; and
- Managing partners who provide services.

Over time, measurement will take place in two dimensions. First, the ability of LTB to track the performance of a bus route will be greatly enhanced with the universal adoption of the fleetwide automated vehicle location system, as initially established to support the Countdown program of consumer information. Second, the statistically valid data created by the Mystery Travel Survey will be integrated into the evaluation of the performance of the private operator.

Beyond "Privatization": Focusing on Incentives for Innovation

Those interviewed agreed that there have been major improvements in management incentives since the decision to contract bus operations to private service providers. There was not a consensus, however, on just how much restructuring was needed to provide the increased incentives. One "brand manager" for a highly successful private rail operation, who had earlier performed the same job for British Rail, made reference to the decision to employ luxurious 2/1 seating in First Class for his rail service from downtown London to a major airport. This luxurious seating will provide electricity for laptop computers at every seat. His operation is highly customer-oriented and highly innovative. If the total market share of his service increases, he will receive a significant bonus to reward the improved performance for which he is responsible.

We asked the brand manager whether working for a private company brought more incentives to good performance than working for the public sector. He noted that he expected to get a salary bonus, but that this was not the key issue. The big difference, he stated, was the ability to make decisions on a more localized basis—an increasingly important dynamic in both the public and private sector. When he made the business case for the laptop computer electricity, his immediate boss could make that decision on behalf of the company. In the case of the 2/1 seating, he said, the former structure of British Rail would have forced that decision higher and higher up the management structure before a decision could be reached. He guessed that the old British Rail management would have denied permission for the airport train to get 2/1 seating, given that other national operations were limited to the standard 2/2 seating.

It was the ability to make decisions locally, by someone directly involved with the local service, the manager stated, that had most improved his life as a manager. Observing his train or the bus he rides, he noted that decisions about good upholstery, good lighting, and methods of cleaning the vehicle have all been decentralized down to a level closer to the experience of the customer. The importance, per se, of whether his company was "owned" by public shareholders or by private shareholders was less clear to him.

Political Accountability in a New Paradigm

The London experience provides a final opportunity for lessons learned in the derivation of a new paradigm. In the mid-1980s London Transport, the agency which makes countless decisions affecting the quality of life for the Greater London area, was made part of the national government. Now, 15 years later, it will become part of a new, democratically elected regional government and returned to local control. In London, transit managers are looking forward to the day when policy direction will become more clearly defined: "We are firmly committed to...[developing] options for an Integrated Transportation Strategy for London, which will be determined by the newly elected Mayor" (senior staff interview, 2000).

In the new model now under development, the transit agency will serve under strong political leadership, which may be needed in the implementation of its programs. Currently, the public transport agency seeks approval for bus priority treatments from 33 boroughs, a city agency, and the highway agency. London Transport notes that implementing a major program for bus priority "seems likely to require strong political will as well as co-ordinated action across wide geographical areas. LT therefore believes the Mayor's power to...provide the leadership to implement radical and coordinated bus priority strategies across borough boundaries is likely to prove critical."

An agency that once defined the social objectives, defined the services, and operated solely with its own dedicated assets is now publicly asking for strong political will to define the objectives. Based on that direction, the agency will define the transit services, which it will implement through the most appropriate mechanism, which may or may not be carried out by internally owned assets. The role of the agency is focused on the design, tracking, and evaluation of services as experienced by the consumer.

In the evolving paradigm in London

- *The monitoring and evaluation of service quality as experienced by the user has become a prime function throughout London Transport;*
- *Quality specification and control has become the core task of LTB; managers at LTB are freed up to serve as the command-and-control center for the entire bus network;*

London Transport Bus



- *These managers are liberated to devote full attention to tracking and analyzing services in terms of customer needs and satisfaction and to assess service strategies and refinements based on the results of the tracking process; and*
- *Management of the information technology and monitoring function is housed in the market research unit, which is seen as part of the core function of management.*

Principles and Characteristics of a New Paradigm

The fundamental characteristics of an emerging new paradigm are contained in the figures and table that follow. Figure 1 illustrates how responsibilities and core functions are being "decoupled." Table 1 contrasts the current organization and management characteristics with those emerging from examples cited. Figure 2 highlights the key principles that should guide new organizational and management arrangements in the future.

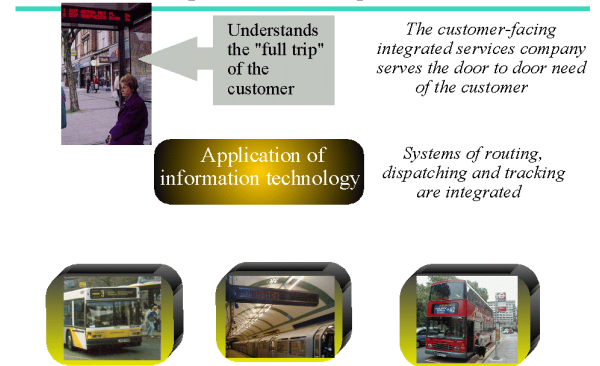
These principles constitute a potential agenda for any region, locale, or organization wishing to pursue fundamental change in the provision of public transportation services and the management of public transportation organizations. Appendix A outlines the steps that might be taken to pursue this agenda.

As suggested in Figure 1, the emerging public transportation paradigm involves a separation of strategic policy-making functions—goal-setting, levels of service, allocation of resources, land use, transportation policy integration, and so forth—from the management of services on the street. This separation can be achieved by carefully differentiating the role of policy board members from that of the service management staff or by housing these responsibilities in separate organizations. The former approach is already in evidence in several major metropolitan areas of North America, while the latter is the model that has emerged in the Greater London area and in Vancouver, British Columbia.

Greatly heightened emphasis and organizational commitment to customer-related information management as a major strategic organizational focus is a feature prominent in Europe, recently introduced on the west coast of Canada, but yet to emerge in the United States.

The management of services, in turn, can be separated from the actual production of services, which can be carried out by varying combinations of public and private provider

The Evolving Paradigm of Transportation Organization



The Observed Paradigm of the 1990s

- *In each case, the client deals with the integrated service provider concerned with the door-to-door trip.*
- *In each case, information technology is used to design, track, and evaluate the services provided.*
- *In each case, the modal capacity need not be provided on the dedicated assets of the company.*

The Derived Paradigm

How is it structured?

- *Customer-focused one-stop shopping element.*
- *Power to design, track, monitor, and modify service.*
- *Delegation of modal capacity to most appropriate provider.*

How is it managed?

- *A set of performance measures track the experience of the customer.*
- *A set of performance measures track the efficiency of service provision.*
- *Accountability is decentralized to the lowest appropriate level.*

organizations under varying partnership arrangements. SeaLand/CSX continues to operate its own vessels and facilities but freely uses its former competitors as customer needs require. Similarly, London Transport continues to operate its own rail transit service, while providing bus service through an entirely different model.

Framing a New Organizational Paradigm

Institutional Arrangement	Focus of Responsibility	Core Activities
Policy Body	Quality of Life	Establish goals/policy <ul style="list-style-type: none"> • Level of service • Quality of service • Price • Investment priorities • Resource Allocation
Public Transportation Organization	Quality of the Trip	Create service strategies Manage information technology Manage services Monitor and track <ul style="list-style-type: none"> • Market research • Customer experiences • Service quality • Service efficiency
Providers of Modal Capacity, Services and Functions	Efficiency Resource Use Quality Outputs	Operate Services Perform Functions

Table 1
Changes in Organizational Structure and Functioning under Traditional and New Models

Dimension	Traditional Industry Model	New Paradigm
<i>Service Orientation</i>	Vehicles in operation	Customers' transportation experience
<i>Governance</i>	Service vertically integrated within a single public agency	Service horizontally integrated across multiple public and private providers
<i>Strategic System</i>	Weak and intermittent	Strong Principle task of senior management
<i>Market Definition</i>	Narrow Limited by program restrictions Poor responsiveness to change	Open market High level of responsiveness to change
<i>Pricing Policy</i>	Determined by budget constraints	Market-driven (or policy-driven) Price differentiation through quality and service levels
<i>Cost Characteristics</i>	High subsidies under public budget constraints	Market-related Incentives for lower cost
<i>Performance Measures</i>	Related to vehicle use Ex poste justification of programs and expenditures	Real-time customer-oriented Linked to employer/provider incentive systems
<i>Technology Focus</i>	Vehicle-oriented Slow adoption, adaptation	Customer-oriented Information focus Rapid adoption, adaptation
<i>Accountability</i>	To external political controllers, by top management To top management, by staff at lower levels	To customers By staff at lowest organizational level
<i>Culture</i>	Closed Oriented to position description Active informal culture	Open Oriented to problem-solving

Figure 2
Principles of the New Paradigm in Public Transportation

Principle 1

Increase the power of a central, publicly owned and publicly operated entity to design, track, and evaluate component elements that together provide mobility to the region.

- The entity would have the power to give out or withhold subsidy in rewarding superior service or sanctioning substantial service.
- The entity would have information technology and skills available to understand and track movement needs on an individual, case-by-case basis.

Principle 2

Allow for a decreased role of the central transit agency in the direct provision of services, when appropriate.

- The entity would find the right level for various types of decisions to be made.
- The entity would move accountability and incentives to the lowest decision-making level possible.

Principle 3

Increase incentives for line managers and employees throughout the organization to improve the quality of service whenever possible.

- The entity would find the right level for various types of decisions to be made.
- The entity would move accountability and incentives to the lowest decision-making level possible.

Principle 4

Eliminate the assumption that the public is best served by minimizing the price of service. Acknowledge the necessity to tailor services and products to meet customers' needs and clearly demonstrate the value that results.

- Low price is not the only market imperative.
- The full value of public transit must be better demonstrated and documented.

Principle 5

Develop technology to track the needs of the rider and the quality of the service, as perceived by the rider, that is, from door-to-door.

- The entity would monitor performance from a customer standpoint and feed back that information into its service improvement and investment process.
 - The entity would monitor performance across the entire system.
 - The entity would use monitoring technology that would track the customer's total travel experience, not just the line-haul segment.
-

Appendix A

MANAGING THE PROCESS OF CHANGE: TASKS, STEPS, AND ACTIVITIES

There is a school of thought suggesting that a paradigm shift only occurs in response to a crisis in the performance of an organization or in response to outside demands. There is evidence, however, that paradigm shifts also can be fostered by design, through the right combination of leadership, insight, approach, and resources.

In either case, successful organizations manage and direct change through a continuous process involving the tasks, steps, and activities highlighted below. No matter how large a change is contemplated, a systematic approach is needed to guide, manage, and sustain fundamental change.

The Goal:

Strengthening the Capacity of the Organization To Make Continuous, Proactive Change

The search for *new paradigms* for public transportation organizations is not focused on achieving a particular organizational structure or design, but on formulating principles that can guide public transportation organizations in becoming more responsive and agile in addressing emerging travel demands and the broader needs of the community.

The goal of the New Paradigms project is to move public transportation organizations from their current reliance on reactive, incremental change to a position of dynamic, continuous adjustments, with the ability to make fundamental strategic changes when necessary.

Implicit in the search for new paradigms is the need to move away from a model of reactive, incremental change at the margins that characterizes most of today's public transportation organizations to a model that emphasizes continuous, proactive change in response to markets and opportunities.

The extent and pace of organizational change depends to a large degree on three variables:

1. Constantly changing market and emerging opportunities.

Even where current services reasonably satisfy current riders, reliance on incremental changes in current services will inevitably reveal increasingly significant mismatches between current service and changing markets. Though transit ridership has increased recently in absolute terms, the specter of continuing decline in market share looms as a serious long-term challenge.



*"The real crisis is the traditional mindset held by public transportation operators, participants and stakeholders."
(TCRP Research Results Digest
No. 24, Transportation Research Board,
Washington, D.C., April 1998, p. 5)*

2. The orientation of management and the culture of the organization.

Constraints and tradition have made today's public transportation organizations reactive in nature. Eventually, a *reactive posture* will put an organization so far out of alignment with its markets that it will require a major reorientation or overhaul of the organization—a wrenching response to crisis conditions.

*"The greatest difficulty in the world is not for people to accept new ideas, but to make them forget old ideas."
(John Maynard Keynes in Peters, p.78)*

3. Conditions in the political environment.

With conditions in the "enabling environment" dictated largely outside the public transportation organization, extraordinary leadership and coalition-building will be needed to invite, create, and sustain conditions for proactive change.

The overarching focus of the organization—for both leaders and employees—must, therefore, be on

- Strengthening the capacity of the organization to make continuous, proactive change, regardless of the exact nature of the change being pursued; and
- Refocusing the mission and capacity of the organization on managing service in addition to managing assets.

*"Incrementalism is innovation's worst enemy."
(Nicholas Negroponte/MIT Media Lab,
cited in Peters, p. 26)*

Implementing Change

Four phases of change are typical in any organization, whether it is experiencing minor or major changes in the surrounding environment or whether its approach is proactive or reactive. These four phases include

- Phase I: Recognizing the Need for Change
- Phase II: Leading and Planning Change
- Phase III: Making Change Happen
- Phase IV: Institutionalizing New Approaches
- ***Phase I: Recognizing the Need for Change***

*Change is only successful if it is specific to the organization and its circumstances.
There is no single prescription for fundamental change that is suited to every organization and circumstance.*

During the initial phase of the change process, the need for change becomes apparent, broadly recognized, and legitimized. For this to happen, the scope and breadth of change required needs to be recognized throughout the organization.

Regardless of conditions in the external environment, the organization must have the structures in place and the resources committed to continually assess the need for change, including

- Open lines of communication to the authorizing and financing institutions (i.e., those who can alter the "enabling environment" for public transportation organizations);
- Regular and timely feedback from stakeholders and constituents (customers);
- Structures to scan and assess the environment (usually in the leadership); and
- Support from subject matter experts and development communities.

Traditional transit organizations regularly evaluate service and internal operating performance, both to justify budgetary support and as a way to identify opportunities to improve current services. These self-assessments, however, usually stop short of questioning or examining whether existing institutional arrangements, missions, or business processes are aligned with or are effective in addressing the full range of changes taking place outside the organization. Today, it is these external forces and factors that are more likely to provide the impetus for fundamental change.

Most proactive organizations do not rely on a single unit or source of information in assessing the need for change. Instead, they embed critical functions—market research, service design, customer-based service monitoring, internal communications, and so forth—into the management process. These functions determine whether the organization is adequately aligned with the changes in the market. This assessment process, carried out continuously, naturally leads the organization into the next phase of the change process.

Steps in Recognizing the Need for Change

1. Conduct an environmental scan.

Transit organizations exist for a purpose. A scan is a useful start since it involves describing the organization and its relationships in terms of purpose. In doing a scan, it is essential to think in a service-focused, systematic way. What is the organization's mission and philosophy? What services are produced? For whom are they produced? What are the chief characteristics of the production system? In general terms, how effectively does the organization's social system function in producing the transit service? What are the key inputs to the organization and on whom do they depend? What is the relationship between the transit organization and local political bodies? Does it receive the support it needs and why or why not?

Barriers to Change

Not establishing a great enough sense of urgency

Not creating a powerful enough guiding coalition

Lack of a compelling vision

Undercommunicating the vision

Not removing obstacles to the new vision

Not planning systematically for short-term "wins"

Declaring victory too soon

Not anchoring changes in the corporation's culture

(John Kotter, Management Consultant)

2. Assess changes in market conditions.

The scan identifies current customers. Vibrant, adaptable organizations also constantly explore the broader environment to see if current or potential customers are using alternatives to its services. Are market conditions changing in ways that are (or are potentially) adverse or advantageous to the transit agency? Such information is essential input to the strategic planning process in the agency.

3. Assess organizational performance in the core mission.

The core mission of a transit organization has historically been to produce transit services. *The core mission may be changing, however, toward the management of services and travel options that improve personal mobility and access.* How well the organization performs and balances these tasks is the single most critical factor to its overall well-being and long-term viability. What is the quantity and quality of performance? Is performance data captured and used in ways that feedback relevant and timely information to the production side as well as to the strategic level?

4. Identify changes in customer needs and expectations.

Do the agency's customers get value for their money and do they perceive that they get value? Are there services or service modifications that customers would find attractive? The only way to find out is to periodically ask them. Excellent methods for determining the answers are available and in use.

5. Assess organizational responses to changing needs and expectations.

When the press of change (whether from customers or other influentials) hits your organization, what is the typical organizational response? What is the pattern of responsiveness to demands for change or opportunities? If response is weak, what information is the organization failing to receive or consider?

6. Review critical analyses and calls for change.

How have the press, legislative analyses, organizational assessments, and so forth treated your transit organization during the past 5 years? Are there recurring themes in these assessments? What can you learn from them? Have important critical recommendations been addressed?

7. Assess the organization's response to new ideas and innovation.

Identify the most important innovations in your organization during the past 5 years. Is there a pattern of exploring new ideas and seeking innovations throughout the

organization? What happens when new ideas and suggestions are made? Does management positively promote an innovative or learning culture?

8. Assess employees' sense of the need for change.

Even when there is an organizational resistance to change or innovation, many employees have a clear sense that change is inevitable and even makes sense. Do employees in your organization have an appreciation of the conditions in the market and in the political context?

Questions for Readers

1. How much of this agenda is being addressed in your area?

2. How much is left unaddressed?

Phase II: Leading and Planning Change

A great deal of progress has been made throughout the transit industry in identifying and engaging a broad spectrum of stakeholders, particularly in support of local transit project and funding initiatives. Where stakeholder groups and local transit coalitions have been engaged, they tend to be well-informed and effective advocates. In addition, transit organizations are increasingly engaging in "visioning" exercises directed at articulating an expanded future role for transit in their communities. Stakeholder engagement and visioning processes, however, have rarely been directed internally to the organizations, their mission, their structure, and their business processes.

*"Effective prototyping may be the most valuable 'core competence' an innovative organization can hope to have."
(Michael Schrage in Peters, p. 96)*

Leading and planning change requires some variation of the following activities:

- Committing leadership at the highest levels,
- Forming a powerful guiding coalition,
- Creating a vision,
- Communicating the vision, and
- Planning for and creating short-term wins.

Steps in Planning and Leading Change

1. Assure high-level leadership.

The firm and continuing commitment and involvement of high-level leaders is essential to introduce and sustain consideration of and progress toward fundamental change. Top leaders must not only guide development of the vision

and mission of the organization, they must commit the resources — time, personnel, and money — required to sustain the change effort, as well as participate in it and be prepared to react and respond to choices and recommendations that may flow from it. Lack of leadership, sustained support, and participation from the top levels of management is most often the ingredient that dooms efforts at organizational and business process "reengineering." The ability and willingness to manage fundamental change in a hands-on way are, unfortunately, not skills that every senior manager possesses, particularly in industries that have been as insular as public transportation.

2. Assess the results of recent new initiatives.

Results of any recent efforts aimed at changing the transit organization's strategic orientation, programming, or organizational culture offer important lessons for any new initiative. The lessons from positive experiences are easier to face than negative ones. However, the results of negative or mixed experiences can often yield the most useful information about the organization's orientation to and capacity for change. A candid review of these experiences can reveal specific information about the methods of intervention, and about the areas and nature of resistance, and, in the process, can help design a better approach.

3. Identify stakeholders for participation in change.

The era of closed organizations that exist as a world unto themselves is over. In the twenty-first century, successful organizations will be those that derive energy and support from their key stakeholders. Stakeholder identification is in fact a key strategic step, since it reveals the level of ambition and creativity that the transit organization's leadership brings to the task of mission reorientation. Stakeholders include the immediately apparent groups such as customers, the labor force, suppliers, and political influentials. But a wider view might include business advocacy groups, developers, good government groups, and advocates for groups who are transportation-dependent. Public transportation organizations need to ask, "Are we taking a narrow or broad view of our stakeholders? Who must we serve? Who might we serve? With whom might we form advantageous alliances?"

4. Define a process for engaging stakeholders in change.

Transit organizations that have kept pretty much to themselves for decades cannot expect to invite stakeholders, including a number of new groups, to a big, new agenda and necessarily have them participate. The process of engaging stakeholders must be the subject of careful thought and planning. The basic rule is to involve those groups or

individuals whose support or acquiescence is needed for changes to be made in the near to midterm. Which stakeholders are essential in the near and midterm? What does each stakeholder expect from the transit agency, and what can transit gain from each stakeholder's support? Are there conflicts among stakeholders that need to be taken into account?

5. Engage stakeholders.

Effective stakeholder engagement involves, to some degree, both the sharing of power and a willingness to open the agency to new forms of accountability. When stakeholder engagement and support is welcomed, their expectations will rise and must be met. Effectively managed, stakeholder engagement adds to the power and impact of the agency. What do stakeholders want from the transit agency? How can their desires and expectations be used to advance the agency's change objectives? How should the agency's leadership group and other parts of the agency be involved in the development of new and renewed stakeholder relations? What are the implications for accountability of the new relationships?

6. Establish a vision for the post-change organization.

A compelling vision can be a tremendous asset in engaging stakeholders and the agency's employees. It should communicate purpose and the boundaries of ambition in a way that attracts the key players. Since it will provide a general frame of reference for the agency's future, the vision should not lead to expectations beyond the realm of possibility. Since the development of a new, compelling vision is meant to communicate new thinking to the agency and to key external stakeholders, it follows that agency staff and stakeholders should have a sense of ownership. How can the agency effectively involve the organization and outside groups in the development of a new vision? Who should lead the effort?

7. Communicate vision and examine its implications.

Vision captures the purpose and direction of a change program. The effectiveness of the vision, however, depends critically on the transit organization's ability to capture the interest and involvement of key players. And this is an essential role of leadership. Experience shows that a change program often generates resistance; but, importantly, it also shows that it is a time when new commitments are made, new alliances formed, and the inner motivation of employees tapped. It is also essential that the full range of potential inherent in the vision be harnessed. This often means exploring the meaning of the change program for the entire agency and designing programs and methods that

permit the full potential to be achieved. How will my agency extend the meaning of the new vision to the entire workforce? Who can be relied on for the change effort? How will the allies of change be rewarded?

8. Identify new ideas and innovations.

As the vision is communicated and the process of change begun, many employees will seek an outlet for their ideas for improvement. This is a key time for capturing the interest and commitment of the agency's most committed people. What past practices have worked to channel good ideas and innovations to the decision-makers? What new practices should be tried to ensure that employees feel welcome as participants? What feedback methods are needed to ensure that people with ideas get a sense of closure?

9. Test ideas and innovations.

Managing innovation can be tricky in agencies that have a weak record on introducing change. Where experience does exist, it is important to build from it. Does my agency have a record in developing and piloting innovations? How do I create a pilot for new ideas before going global? How can I use the introduction of innovation to build support to help ensure the innovation's success?

10. Establish milestones to guide programs.

Setting reasonable expectations, designing appropriate performance indicators, developing measurement systems, and ensuring that feedback is taken into account are essential elements of change management. What are the appropriate indicators of success? How should they be communicated? What milestones make sense in my particular circumstances? Do my internal control systems need modifying to achieve the gains we seek?

11. Identify new behaviors to be encouraged.

Words alone mean little. Activities, actions, and behaviors mean a lot. Every new goal and objective implies a change in the behavior of external stakeholders, of agency managers, and ultimately, of employees. What are the key behaviors needed to make the vision a reality? Is there a group that can effectively lead the change? Is the group appropriately representative of the organization? What behaviors must this group model in order to lend credibility to the change program?

Question for Readers

- 1. Have you engaged leadership, employees, stakeholders, and community leaders in the pursuit of new paradigms?***

Phase III: Making Change Happen

The resistance to fundamental change in transit organizations may be stronger than in other businesses and industries since agility in public institutions has been constrained over time by layers of legal, regulatory, and administrative requirements. Because the span of control of transit managers and even of board members is limited, the mechanisms for making and sustaining fundamental change in organizational mission, institutional structure, and business processes require a commitment of leadership as well as resources.

Bringing the organization structure, processes, incentives, and people into sync with an external environment increasingly dependent on rapid change; instant, in-depth information exchange; and attention to customers' and consumers' personal needs is the next phase of change. This is a long and iterative process that often requires several years of sustained effort.

Steps in Making Change Happen

1. Establish transition structures.

Change must be sanctioned, if not led at the top. Eventually change must involve everyone inside and outside the organization who has a stake in its success. How should the leadership group that will guide change be composed? How much time, energy, and commitment will be required from the members of this group? Would representation of the employees or union be helpful over the long term? How can the commitment of management and employees best be achieved? What is the timetable for change?

2. Commit necessary resources.

Closer partnerships with stakeholders, customers, and employees is probably less costly than the status quo over the long term. In the near term, however, change requires extra resources, since current programming must continue even as the new vision is being born. How much will the change initiative cost? Where will resources be obtained? How can it be sustained?

3. Establish accountability and empower and reward people for new behaviors.

Change requires taking risks. For most agencies, this means breaking old thinking and practices and replacing them with new behaviors. How does my current system of reward and accountability treat risk? How must it change in order to be an integral component of achieving the new vision? Who should be responsible for rethinking the new approach?

New Focus on Human Resources

"Executives worldwide who rank human performance ahead of productivity and technology in strategic importance: 75%. Those who say that by 2010 attracting and retaining people will be the No. 1 focus in strategy: 80%."

"Applicants are tested for tolerance of ambiguity, capacity to work in teams and learning on the fly."

(Dell Human Resources practices, Business Week 10/11/99)

"...people used to work for wages. In the new economy, they work for ownership.... Today teamwork and empowerment are crucial to success."

"...every employee is asked annually to rate his or her manager on 25 criteria. The ratings answer two key questions: Did the managers hire good people? Did their employees like working for them? Most organizations focus only on the results. But if you do the first two, I know the results will follow."
(Kevin P. Ryan, President, DoubleClick)

What is the right time line for introducing it in order to have it aligned with the overall change strategy?

4. Review formal work process and structures.

The transit agency's existing operations and process presumably are working to fulfill existing standards and expectations. Without change in those standards and expectations, nothing new can be achieved. What amounts to good practice across the industry today? Where are current operational processes and practices strong, and where are they weak? What operational and procedural changes are required to meet the new vision and targets?

5. Change formal work processes and structures.

How much change makes sense is a matter of local needs and the quality of current practices. What is the time frame for changing operations? How much experimentation and training is needed to achieve the methods of production and quality of output needed to meet the new goals? How can the people who work to plan, produce, and deliver transit services be engaged in the new vision? Among the most important types of intervention for creating and sustaining change at the organization level include

Strategic Interventions

- Changing products, services,
- Redefining markets,
- Leveraging competitive advantage,
- Engaging stakeholders in new ways,
- (Re)establishing vision and values, and
- Changing the culture.

Technological and Structural Interventions

- Differentiation and integration of labor and information,
- Formal tracking and monitoring structures and information systems,
- Collateral structures, and Work design.

Human Resource Interventions

- Hiring and retention,
- Performance management and measures,
- Rewards and recognition, and
- Training and development.

Human Process Interventions

- Corporate/organizational values and principles,
- Communication and information dissemination,
- Problem-solving and decision-making processes,
- Leadership and coaching,
- Team-building and intergroup relations, and

Performance management (the employee's relationship to the organization).

6. Assign responsibility to remove or suspend barriers to change.

Decision-making, as a general rule, is best done as close as possible to the work unit. In practice, actual change is the cumulative effect of many small decisions being made correctly. When a change program is happening, it is crucial that the managers and employees on site in work units be empowered to solve problems and remove barriers to effectiveness and efficiency. How can my agency develop and reinforce appropriate delegation and decentralization? What attitudinal changes will be required? How can responsibility-taking be rewarded and reinforced?

7. Remove or suspend barriers to change.

In some cases, policy action on the part of top leadership (or even on the part of political leadership) is the best course. How can decision-making at the strategic level be employed as a catalyst and enabler of change?

Question for Readers

1. Are these commitments being considered in your organization?

Phase IV: Institutionalizing New Approaches

The final phase of the change process focuses on ensuring that the organization can continue to react and respond to changes in markets and the surrounding environment in which it operates. Institutionalizing new approaches is not a static process of introducing and "freezing" successful practices.

*"...we will not get to a new transportation 'paradigm' until we shed the outmoded assumptions that underlie the one we seem stuck in."
(A. Scheffer Lang, Transportation Quarterly, Fall 1999, p. 15)*

This phase of the change process requires transforming the organization so that it can proactively anticipate and adjust to changing circumstances in the external environment and in the organization's evolving capability. Three major activities in this phase include

- Empowering others to act on the vision by removing obstacles to change,
- Consolidating success and continuously learning and improving performance, and
- Reinforcing the connection among behavior and success and developing leadership.

These activities allow the organization to embed the proactive elements of the change process in the organization, take advantage of strategic opportunities, and establish an environment of trust.

Building in agility and responsiveness over the long term (rather than installing fixed solutions) requires two different types of commitments that, in turn, require constant renewal:

1. A commitment by senior management to cycle through the steps in Phases I, II, and III on a continuing basis, and a commitment to sustain the organizations capacity to do so; and
2. A commitment by community leaders and elected officials, which is harder to come by, to remain open to actions that can eliminate barriers to agile and responsive behavior by public transportation organizations.

The Change Process at Work: General Electric

One of the most compelling stories of fundamental change is the effort within General Electric (GE) to create a "boundaryless organization." The commitment of widely heralded CEO Jack Welch to change the GE corporate culture to one of self-confidence, simplicity, and speed has been focused on three goals that have spawned a new paradigm for one of the world's most successful business enterprises:

- Build trust,
- Empower employees, and
- Eliminate unnecessary work.

The standard of performance for GE is *to be as good as the best in the world*. At the core of this effort were a series of initiatives that moved the company from a model of strict hierarchy and management control to cross-functional teams that are empowered to act quickly in partnership with customers and suppliers. The city of Louisville in its "CityWorks" program (which was described in Chapter 3) adopted elements of the GE approach to fundamental change.

The key components of Welch's effort at GE have been

- *The "Work Out"*: A continuing series of intense 3-day sessions involving a cross section of employees. With the help of a facilitator, Work Out teams examine key problems and solutions. Recommendations are presented to top managers who must respond on the spot with either "yes," "no," or a request for additional information. From every session, participants must emerge with a list of actionable items that the company is committed to pursue.
- *Best Practices*: Sustained, organized efforts are made to identify achievements from other organizations, and spread them throughout GE.
- *GE Stretch*: Work Out teams are encouraged to pose often impossible goals that "set the bar high enough" to challenge employees to "dream, search and reach." Rewards are based on improvement, without punishing those who fall short.
- *Change Acceleration Program*: To breed a new type of GE manager, Work Out teams share knowledge and wisdom about the change process — how to initiate, accelerate, and sustain fundamental change.
- *360° Leadership Assessment*: The interests of the individual, the company, and the shareholder are aligned through evaluations of every person by managers, peers, and subordinates based on GE's total performance.

Underlying all these activities is a continuing commitment by top managers to break down barriers of hierarchy, function, and geography — to create a "boundaryless" organization — whose energies and creativity are continually directed at going *beyond traditional notions of incremental improvement*

Results

As a result of GE's Work Out program, fundamental changes have been made in both business processes and organizational structure. The concept of a "boundaryless" corporate enterprise at GE has been turned into a truly new paradigm. In the process, GE has become a model of agility, customer responsiveness, and efficiency in a rapidly changing and highly competitive market place.

Appendix B

FUNDAMENTAL CHANGE IN KEY FUNCTIONAL AREAS AND BUSINESS PROCESSES

Pursuit of a paradigm shift in public transportation implies, in part, wholesale realignment of missions, roles, and responsibilities among organizations—both public and private. Many of the examples cited in this report have involved significant organizational and institutional change.

For many communities, it may not be necessary or practical to "wipe the institutional slate clean" and realign the long-standing roles and responsibilities of entire organizations. It may be important, however, to consider other changes that may lead to more dramatic paradigm shifts down the road, including

- New collaborative ventures to address a particular issue or opportunity, or
- Fundamental change in one of the many functions necessary in the design and delivery of public transportation services.

Key Functions and Potential Changes

Table B-1 identifies the most significant of these functions and provides brief comments, based on emerging experience, about the type of change that might be pursued in each. Many of these changes reflect approaches cited in the report. Other changes represent approaches that are already evolving in the transit industry.

Among these key functions are several in which fundamental change from traditional practices may be most important. In these priority areas, fundamental change may provide the impetus for more profound institutional and organizational change down the road. These functions, therefore, represent potential starting points in the pursuit of new paradigms for public transportation.

- | | |
|---|--|
| • <i>Strategic planning</i> | <i>Within the organization and communitywide</i> |
| • <i>Policy formulation</i> | <i>Internal and external</i> |
| • <i>Market research</i> | <i>Both riders and nonriders</i> |
| • <i>Technology development and deployment</i> | <i>Focused on information technologies</i> |
| • <i>Communications</i> | <i>Internal and external</i> |

Resources To Guide Functional Change

There is a growing body of information and documentation describing emerging best practices in the design, management, governance, and funding of public transportation services. Appendix C identifies selected sources that describe in greater detail cutting-edge change in the basic functions of designing and delivering public transportation services.

Table B-1 Exploring Fundamental Change in Key Functions

Functions	Potential New Directions
Policy Formulation	Consolidate policy-making for transportation Separate policy-making responsibility from operations Link directly to broader community, regional goals
Strategic Planning	Sustain a formal function with appropriate staff capacity/skills
Service Planning	Consolidate modal planning authority under a single organization Formalize multimodal linkages, and technical and procedural frameworks across organizations
Monitoring	Broaden performance measurement/monitoring framework/system to align with community/regional goals
Evaluation	Expand service standards and goals to match variable markets
Programming	Restructure program structures to reflect performance and broader community/regional goals
Budgeting	Establish mechanisms for long-term funding and schedule commitments Increase flexibility/reduce restrictions in the use of categorical funds Separate budgeting responsibility from operations
Finance	Expand authority and techniques Expand staff capacity/skills Separate financing authority from operations
Taxation	Increase availability of dedicated funding and local option funding within flexible, multimodal framework Separate taxing authority from operations
Regulation	Consolidate, coordinate, reconcile regulatory policies and programs
Licensing	Broaden authority to engage alternative service providers
Procurement	Institute alternative procurement mechanisms structured to respond to market conditions as well as accountability requirements
Human Resources, Personnel Management, and Compensation	Participatory management Distributed responsibility/authority Reward performance: Individual, group, organization Broader criteria: Customer satisfaction, leadership ability, creativity Flexible staff deployment Life skills and training
Marketing	Image and visibility campaigns Transit "ethic" Detailed market research, market data

Functions	Potential New Directions
Information Dissemination	<p>Emphasis on value of transit: To individuals To communities</p> <p>Electronic media</p>
Advocacy	<p>Partnership - building Coalition - building Media campaigns Focus on state, local elected officials</p>
Operations	<p>Expand product mix; redefine "transit"</p> <p>New delivery mechanisms with customer focus/emphasis: Contract service purchased service, brokerage, service coordination, and universal fare media</p>
Contracting	<p>Expand contract services Partner with private providers, labor Expand funding flexibility Build contract management skills</p>
Brokering	<p>Deregulate across services, providers Introduce state-of-the-art technology</p>
Coordinating	<p>Deregulate across services, providers Expand funding flexibility Build coordination skills Introduce state-of-the-art technology</p>
Advising	<p>Expand information resources, content Expand employee knowledge base Information technologies</p>
Technology Development and Deployment	<p>Incentives for introduction Resources for introduction Expand technology-based knowledge and skills</p>
Parking Policy, Planning, and Management	<p>Consolidate authority/collaborate on policy Introduce supportive pricing Flexible use of revenues Integrate into land-use, development policies/controls</p>
Land Use Development	<p>Link through legal, regulatory procedures</p>
Planning, Management	<p>Expand transit authority to own, develop, operate property Flexible use of revenues Build development-related skills</p>
Property Management	<p>Expand transit authority to own, develop, operate property Flexible use of revenues Build property management skills</p>

Appendix C

SELECTED SOURCES ON EMERGING BEST PRACTICES IN TRANSIT MANAGEMENT, GOVERNANCE, AND FINANCE

The following sources provide extensive information on advances in the current state of the practice in most key functional areas of transit planning, management, governance, and finance. They are listed alphabetically by document title.

1. ***Business Briefing: Global Mass Transit Systems—An Analysis of the Mass Transit Industry and Perspectives on the Future***, World Markets Series, World Markets Research Center, London, U.K., 1998. Overview descriptions of emerging change in various aspects of public transport planning, design, and delivery in 11 metropolitan areas and 14 countries, worldwide, including North America, Europe, Asia, and South America.
2. ***The Changing State DOT***, American Association of State Highway and Transportation Officials, Washington, D.C., 1998. An examination of societal changes and the emerging responses by state departments of transportation.
3. ***TCRP Research Results Digest No. 29: Continuing Examination of Successful Ridership Initiatives***, Transportation Research Board, Washington, D.C., August 1998. The second and most recent of two assessments of the factors and actions that have given rise to increases in transit ridership in 42 cities and metropolitan areas in the United States from 1991-1993 and 1994-1996.
4. ***NCHRP Research Results Digest No. 236: Emerging Models for Delivering Transportation Programs and Services: A Report of the Transportation Agency Organization and Management Scan Tour***, Transportation Research Board, Washington, D.C., March 1999. A review of how transportation organizations are defining functions and roles in four countries—Australia, New Zealand, Sweden, and the United Kingdom. The report summarizes emerging trends in planning, finance, design, construction, maintenance, performance monitoring, and product innovation.
5. ***TCRP Report 31: Funding Strategies for Public Transportation***, Volumes 1 and 2, Transportation Research Board, Washington, D.C., 1998. Case study examples of the uses of varying funding and finance techniques.
6. ***TCRP Report 51: A Guidebook for Marketing Transit Services to Business***, Transportation Research Board, Washington, D.C., 1999. An examination of general and case study examples of how to establish linkages between transit organizations and private business and industry.
7. ***TCRP Report 55: Guidelines for Enhancing Suburban Mobility Using Public Transportation***, Transportation Research Board, Washington, D.C., 1999. Lessons and case study examples of the use of various services and strategies in meeting transit needs in suburban settings.
8. ***TCRP Report 47: A Handbook for Measuring Customer Satisfaction and Service Quality***, Transportation Research Board, Washington, D.C., 1999. A review of quantitative and qualitative tools and methods for assessing customer satisfaction and transit service quality.
9. ***TCRP Report 50: A Handbook of Proven Marketing Strategies for Public Transit***, Transportation Research Board, Washington, D.C., 1999. A framework for development of board-based marketing programs and examination of examples of marketing strategies for varying services and under varying circumstances.

10. ***TCRP Synthesis 35: Information Technology Update for Transit***, Transportation Research Board, Washington, D.C., 2000. *An examination of how information technologies are being introduced and managed throughout the transit industry.*
11. ***Innovative Public Transportation Practices***, Franz K. Gimmmler and Damian J. Kulash, Eno Transportation Foundation, Inc., Washington, D.C., 1996. *A paper prepared for the TCRP Oversight and Project Selection (TOPS) Committee Task Force for Project J-8, "New Paradigms for Public Transportation."*
12. ***Lessons Learned in Transit Efficiencies, Revenue Generation, and Cost Reduction***, Joel Volinski, Center for Urban Transportation Research, University of South Florida, for the Federal Transit Administration, Washington, D.C., June 1997. *A categorization and case study findings of efforts to improve management and transit service delivery.*
13. ***TCRP Report 54: Management Toolkit for Rural and Small Urban Transportation Systems***, Transportation Research Board, Washington, D.C., 1999. *A "toolkit" presentation of state-of-the-practice approaches to carrying out major functions in transit service delivery in small urban and rural settings.*
14. ***Transportation Research Circular Number 460: Public Transportation Management and Planning in a Rapidly Changing Environment: Strategies for Survival***, Transportation Research Board, Washington, D.C., April 1996. *A summary of the proceedings of a conference on the changing environment for transit, the market research function and techniques, management practices, and "new" solutions.*
15. ***NCHRP Report 371: State Departments of Transportation: Strategies for Change***, Transportation Research Board, Washington, D.C., 1995. *An examination from survey results and secondary sources of the emerging strategies of state departments of transportation in response to their changing environment.*
16. ***TCRP Report 21: Strategies to Assist Local Transportation Agencies in Becoming Mobility Mangers***, Transportation Research Board, Washington, D.C., 1997. *An examination of alternative services, supportive actions, barriers, and related strategies to broaden the role of transportation agencies beyond that of service operators to managers of mobility.*
17. ***TCRP Report 40: Strategies to Attract Auto Users to Public Transportation***, Transportation Research Board, Washington, D.C., 1998. *An examination of parking policies and options as a key variable in influencing auto users to use transit.*
18. ***Sustainability and Cities: Overcoming Automobile Dependence***, Peter Newman and Jeffery Kenworthy, Island Press, Washington, D.C., 1999. *An examination of and case studies on the dimensions of "sustainability" and the transportation policies and strategies that are being considered or employed to create a better balance between urban transportation systems and alternatives.*
19. ***The Transit Metropolis: A Global Inquiry***, Robert Cervero, Island Press, Washington, D.C., 1998. *An examination of the relationship of transit service, governance, and management and the social and economic conditions existing in selected cities worldwide.*
20. ***TCRP Report 49: Using Public Transportation to Reduce the Economic, Social, and Human Costs of Personal Immobility***, Transportation Research Board, Washington, D.C., 1999. *An examination of strategies to reduce immobility in segments of the population and of techniques to estimate the costs and savings of reductions in immobility.*

In addition to those specific sources noted above, readers are encouraged to review other regularly published journals of the Transportation Research Board as well as other sources. Among those sources that have been most useful in highlighting emerging best practices in key functional areas have been the *Transportation Research Record*, published by the Transportation Research Board; *Transportation Quarterly*, published by the Eno Transportation Foundation, Inc.; and *Passenger Transport*, published weekly by the American Public Transportation Association.

The **Transportation Research Board** is a unit of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. The Board's mission is to promote innovation and progress in transportation by stimulating and conducting research, facilitating the dissemination of information, and encouraging the implementation of research results. The Board's varied activities annually draw on approximately 4,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

The National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Bruce M. Alberts is president of the National Academy of Sciences.

The National Academy of Engineering was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. William A. Wulf is president of the National Academy of Engineering.

The Institute of Medicine was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, upon its own initiative, to identify issues of medical care, research, and education. Dr. Kenneth I. Shine is president of the Institute of Medicine.

The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purpose of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both the Academies and the Institute of Medicine. Dr. Bruce M. Alberts and Dr. William A. Wulf are chairman and vice chairman, respectively, of the National Research Council.

Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
U.S.DOT	United States Department of Transportation

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